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**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**[Docket No. FWS-R4-ES-2021-0059; FF09E21000 FXES1111090FEDR 223]**

**RIN 1018–BE01**

# Endangered and Threatened Wildlife and Plants; Threatened Species Status with a Section 4(d) Rule for Ocmulgee Skullcap and Designation of Critical Habitat

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), propose to list the Ocmulgee skullcap (*Scutellaria ocmulgee*), a plant species from Georgia and South Carolina, as a threatened species and designate critical habitat under the Endangered Species Act of 1973, as amended (Act). This determination also serves as our 12-month finding on a petition to list the Ocmulgee skullcap. After a review of the best available scientific and commercial information, we find that listing the species is warranted. Accordingly, we propose to list the Ocmulgee skullcap as a threatened species with a rule issued under section 4(d) of the Act ("4(d) rule"). If we finalize this rule as proposed, it will add this species to the List of Endangered and Threatened Plants and extend the Act's protections to the species. We also propose to designate critical habitat for the Ocmulgee skullcap under the Act. In total, approximately 6,577 acres (ac) (2,662 hectares (ha)) in Bibb, Bleckley, Burke, Columbia, Houston, Monroe, Pulaski, Richmond, Screven, and Twiggs counties, Georgia, and Aiken and Edgefield counties, South Carolina, fall within the boundaries of the proposed critical habitat designation. We also announce the availability of a draft economic analysis (DEA) of the proposed designation

of critical habitat for the Ocmulgee skullcap.

**DATES:** We will accept comments received or postmarked on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for a public hearing, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may submit comments by one of the following methods:

(1) *Electronically*: Go to the Federal eRulemaking Portal: *https://www.regulations.gov*. In the Search box, enter the docket number or RIN for this rulemaking (presented above in the document headings). For best results, do not copy and paste either number; instead, type the docket number or RIN into the Search box using hyphens. Then, click on the Search button. On the resulting page, in the panel on the left side of the screen, under the Document Type heading, check the Proposed Rule box to locate this document. You may submit a comment by clicking on "Comment."

(2) *By hard copy*: Submit by U.S. mail to: Public Comments Processing, Attn: FWS-R4-ES-2021-0059, U.S. Fish and Wildlife Service, MS: PRB/3W, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments only by the methods described above. We will post all comments on *https://www.regulations.gov*. This generally means that we will post any personal information you provide us (see **Information Requested**, below, for more information).

*Availability of supporting materials*: For the critical habitat designation, the coordinates or plot points or both from which the maps are generated are included in the decision file and are available at *https://www.regulations.gov* under Docket No. FWS-

R4-ES-2021-0059 and on the Service's website, at *https://www.fws.gov/office/georgia-ecological-services/library*. Additional supporting information that we developed for this critical habitat designation will also be available on the Service's website, at *https://www.regulations.gov*, or both.

**FOR FURTHER INFORMATION CONTACT:** Peter Maholland, Acting Field Supervisor, U.S. Fish and Wildlife Service, Georgia Ecological Services Field Office, 355 East Hancock Avenue, Room 320, Athens, Georgia 30601; telephone 706-613-6059. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

**SUPPLEMENTARY INFORMATION:**

**Executive Summary**

*Why we need to publish a rule.* Under the Act, a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become endangered in the foreseeable future throughout all or a significant portion of its range). We have determined that the Ocmulgee skullcap meets the definition of a threatened species; therefore, we are proposing to list it as such and proposing a designation of its critical habitat. Both listing a species as an endangered or threatened species and designating critical habitat can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process.

*What this document does.* We propose to list the Ocmulgee skullcap as a threatened species, provide measures under section 4(d) of the Act that are tailored to our current understanding of the conservation needs of the species, and propose the

designation of critical habitat for the species.

*The basis for our action.* Under the Act, we may determine that a species is an endangered or threatened species because of any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We have determined that the primary threats to the Ocmulgee skullcap's current and future condition are habitat loss and fragmentation due to development and urbanization (Factor A), competition and encroachment from nonnative invasive species (Factor A and E), and herbivory from white-tailed deer (*Odocoileus virginianus*) (Factor C).

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary) to designate critical habitat concurrent with listing to the maximum extent prudent and determinable. Section 3(5)(A) of the Act defines critical habitat as (i) the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protections; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species. Section 4(b)(2) of the Act states that the Secretary must make the designation on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impacts of specifying any particular area as critical habitat.

**Information Requested**

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as

possible. Therefore, we request comments or information from other concerned governmental agencies, Native American Tribes, the scientific community, industry, or any other interested parties concerning this proposed rule.

We particularly seek comments concerning:

(1) Ocmulgee skullcap's biology, range, and population trends, including:

(a) Biological or ecological requirements of the species, including habitat requirements for growing and reproducing;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures for the species, its habitat, or both.

(2) Factors that may affect the continued existence of the species, which may include habitat modification or destruction, overutilization, disease, predation, the inadequacy of existing regulatory mechanisms, or other natural or manmade factors.

(3) Biological, commercial trade, or other relevant data concerning any threats (or lack thereof) to this species and existing regulations that may be addressing those threats.

(4) Additional information concerning the historical and current status, range, distribution, and population size of this species, including the locations of any additional populations of this species.

(5) Information on regulations that are necessary and advisable to provide for the conservation of the Ocmulgee skullcap and that we can consider in developing a 4(d) rule for the species. In particular, information concerning the extent to which we should include any of the section 9 prohibitions in the 4(d) rule or whether we should consider any additional exceptions from the prohibitions in the 4(d) rule.

(6) The reasons why we should or should not designate habitat as "critical habitat" under section 4 of the Act (16 U.S.C. 1531 *et seq*.), including information to

inform the following factors that the regulations identify as reasons why designation of critical habitat may be not prudent:

(a) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

(b) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

(c) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States; or

(d) No areas meet the definition of critical habitat.

(7) Specific information on:

(a) The amount and distribution of Ocmulgee skullcap habitat;

(b) What areas, that were occupied at the time of listing and that contain the physical or biological features essential to the conservation of the species, should be included in the designation and why;

(c) Any additional areas occurring within the range of the species, (i.e., Georgia and South Carolina), that should be included in the designation because they (1) are occupied at the time of listing and contain the physical or biological features that are essential to the conservation of the species and that may require special management considerations, or (2) are unoccupied at the time of listing and are essential for the conservation of the species;

(d) Special management considerations or protection that may be needed in critical habitat areas we are proposing, including managing for the potential effects of climate change; and

(e) What areas not occupied at the time of listing are essential for the conservation of the species. We particularly seek comments:

(i) Regarding whether occupied areas are adequate for the conservation of the species; and

(ii) Providing specific information regarding whether or not unoccupied areas would, with reasonable certainty, contribute to the conservation of the species and contain at least one physical or biological feature essential to the conservation of the species, particularly areas in the Savannah River watershed (Unit 1); and

(iii) Explaining whether or not unoccupied areas fall within the definition of "habitat" at 50 C.F.R. § 424.02 and why.

(8) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat.

(9) Any probable economic, national security, or other relevant impacts of designating any area that may be included in the final designation, and the related benefits of including or excluding specific areas.

(10) Information on the extent to which the description of probable economic impacts in the draft economic analysis is a reasonable estimate of the likely economic impacts.

(11) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding any specific area outweigh the benefits of including that area under section 4(b)(2) of the Act. If you think we should exclude any additional areas, please provide credible information regarding the existence of a meaningful economic or other relevant impact supporting a benefit of exclusion.

(12) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Please note that submissions merely stating support for, or opposition to, the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or a threatened species must be made "solely on the basis of the best scientific and commercial data available."

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**.

If you submit information via *https://www.regulations.gov*, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *https://www.regulations.gov*.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *https://www.regulations.gov*.

Because we will consider all comments and information we receive during the comment period, our final determinations may differ from this proposal. Based on the new information we receive (and any comments on that new information), we may

conclude that the species is endangered instead of threatened, or we may conclude that the species does not warrant listing as either an endangered species or a threatened species. For critical habitat, our final designation may not include all areas proposed, may include some additional areas that meet the definition of critical habitat, and may exclude some areas if we find the benefits of exclusion outweigh the benefits of inclusion. In addition, we may change the parameters of the prohibitions or the exceptions to those prohibitions in the 4(d) rule if we conclude it is appropriate in light of comments and new information received. For example, we may expand the prohibitions to include prohibiting additional activities if we conclude that those additional activities are not compatible with conservation of the species. Conversely, we may establish additional exceptions to the prohibitions in the final rule if we conclude that the activities would facilitate or are compatible with the conservation and recovery of the species.

*Public Hearing*

Section 4(b)(5) of the Act provides for a public hearing on this proposal, if requested. Requests must be received by the date specified in **DATES**. Such requests must be sent to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule a public hearing on this proposal, if requested, and announce the date, time, and place of the hearing, as well as how to obtain reasonable accommodations, in the *Federal Register* and local newspapers at least 15 days before the hearing. For the immediate future, we will provide these public hearings using webinars that will be announced on the Service's website, in addition to the *Federal Register*. The use of these virtual public hearings is consistent with our regulation at 50 CFR 424.16(c)(3).

**Previous Federal Actions**

On April 20, 2010, we were petitioned by the Center for Biological Diversity and others to list 404 riparian and wetland species in the southeastern United States, including Ocmulgee skullcap, under the Endangered Species Act of 1973, as amended (16 U.S.C.

1531-1543; Act) and designate critical habitat (CBD 2010, entire). In response to the petition, we completed a partial 90-day finding on September 27, 2011, in which we announced our finding that the petition contained substantial information indicating the Ocmulgee skullcap may warrant listing (76 FR 59836).

**Supporting Documents**

A species status assessment (SSA) team prepared an SSA report for the Ocmulgee skullcap. The SSA team was composed of Service biologists, in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the status of the species, including the impacts of past, present, and future factors (both negative and beneficial) affecting the species. In accordance with our joint policy on peer review published in the *Federal Register* on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we sought the expert opinions of 3 appropriate specialists regarding the SSA. We received 1 response. We also sent the SSA report to 2 partners, including scientists with expertise in biology, habitat, and threats to the species, for review. We received review from 2 partners (State agencies). The SSA report and other materials relating to this proposal can be found at *https://www.regulations.go*v under Docket No. FWS-R4-ES-2021-0059.

## I. Proposed Listing Determination

**Background**

A thorough review of the taxonomy, life history, and ecology of the Ocmulgee skullcap (*Scutellaria ocmulgee*) is presented in the SSA report (version 1.2; Service 2020, pp. 4–11). Ocmulgee skullcap is a perennial herb in the Lamiaceae (mint) family with 4-sided stems that grows up to 16 to 32 inches (in) (40 to 80 centimeters (cm)) tall. It bears blue-violet colored and faintly fragrant flowers in July. Although taxonomy for Ocmulgee skullcap has been consistent through time, identification of the species is

difficult; as a result, some occurrences of the congeneric *S. mellichampii* were misidentified as Ocmulgee skullcap prior to 2018.

Ocmulgee skullcap is restricted to the moist, calcareous (calcium rich) north-facing slopes along the Ocmulgee and Savannah River watersheds in Georgia and South Carolina. In these isolated bluff and slope areas, the forest structure is composed of a mixed-hardwood species of trees with a partially open canopy to allow the plants to reach maturity and produce viable seed. The mature, mixed-level canopy provides the mottled shade required by Ocmulgee skullcap. The river bluffs and steep slopes experience localized disturbances including water runoff that limit the accumulation of leaf litter and limit competition from other plants in the shaded, steep forest environment.

The lifespan of Ocmulgee skullcap is estimated to be 5–8 years with 3–6 years of potential viable seed production. The species matures to produce seed in either the first or second year following spring germination. Ocmulgee skullcap reproduces sexually and is pollinated by over 35 different pollinator species including bees, moths, butterflies, and sometimes flies and wasps (Adams et al. 2010, p. 53, Cruzan 2001, pp. 1577–1578).

Ocmulgee skullcap seeds release from the plant in response to disturbance of the stem by wind, rain, animal activity, or other means. The seeds require this dislodging and bare soil rich in calcium under partial shade in order to germinate. Juvenile Ocmulgee skullcap individuals require sufficient amounts of sunlight, moisture, and calcium, presence of pollinators and stable soil conditions to reach maturity and produce seed. In addition, juvenile plants are sensitive to competition for needed resources. Mature Ocmulgee skullcap plants require the same resources as juvenile plants including sufficient time without herbivory or other removal of the seed calyx in order disperse seed.

**Regulatory and Analytical Framework**

*Regulatory Framework*

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species is an endangered species or a threatened species. The Act defines an "endangered species" as a species that is in danger of extinction throughout all or a significant portion of its range, and a "threatened species" as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an endangered species or a threatened species because of any of the following factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms; or

(E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term "threat" to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term "threat" includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term "threat" may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an "endangered species" or a "threatened species." In determining whether a species meets either definition, we must evaluate all identified threats by considering the expected response by the species, and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an "endangered species" or a "threatened species" only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term "foreseeable future," which appears in the statutory definition of "threatened species." Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term "foreseeable future" extends only so far into the future as the Service can reasonably determine that both the future threats and the species' responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. "Reliable" does not mean "certain"; it means sufficient to provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species' likely responses to those threats in view of its life-history

characteristics. Data that are typically relevant to assessing the species' biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

*Analytical Framework*

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent a decision by the Service on whether the species should be proposed for listing as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies. The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at Docket No. FWS-R4-ES-2021-0059 on *https://www.regulations.gov*.

To assess Ocmulgee skullcap viability, we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency supports the ability of the species to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy supports the ability of the species to withstand catastrophic events (for example, droughts, large pollution events), and representation supports the ability of the species to adapt over time to long-term changes in the environment (for example, climate changes). In general, the more resilient and redundant a species is and the more representation it has, the more likely it is to sustain populations over time, even under changing environmental conditions. Using these principles, we identified the species' ecological requirements for survival and reproduction at the individual, population, and species levels, and described the beneficial and risk factors influencing the species' viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated the individual species' life-history needs. The next stage involved an assessment of the historical and current condition of the species' demographics and habitat characteristics, including an explanation of how the species arrived at its current condition. The final stage of the SSA involved making predictions about the species' responses to positive and negative environmental and anthropogenic influences. Throughout all these stages, we used the best available information to characterize viability as the ability of a species to sustain populations in the wild over time. We use this information to inform our regulatory decision.

**Summary of Biological Status and Threats**

In this discussion, we review the biological condition of the species and its resources, and the threats that influence the species' current and future condition, in order to assess the species' overall viability and the risks to that viability. For Ocmulgee skullcap populations to be sufficiently resilient, the needs of individuals (calcium-rich soil, shade or partial shade from canopy cover, adequate precipitation, reduced competition, pollinators) must be met at a large scale. Areas of suitable habitat must be large enough to support pollinators needed for Ocmulgee skullcap reproduction and must include a spatial buffer that acts to prevent or delay encroachment by nonnative invasive species. At the species level, the Ocmulgee skullcap needs a sufficient number and distribution of healthy populations to withstand environmental stochasticity (resiliency) and catastrophes (redundancy) and to adapt to biological and physical changes in its environment (representation).

*Influences on Ocmulgee Skullcap Viability*

In the SSA analysis, we reviewed and summarized the factors that may influence the viability of Ocmulgee skullcap. Potential threats to Ocmulgee skullcap's viability include the following factors: (1) habitat destruction and modification; (2) competition

from other species (e.g., Chinese privet, autumn and thorny olive, Japanese honeysuckle, kudzu, etc.); (3) collection and harvest; (4) herbivory; (5) climate change, and (6) pollinator visitation and reproduction (Service 2020, pp. 12–17). We found the primary factors driving the species' current and future conditions are habitat loss and fragmentation due to development and urbanization (Factor A), competition and encroachment from nonnative invasive species (Factors A and E), and herbivory from white-tailed deer (Factor C). Although medicinal properties of other *Scutellaria* species have been investigated (Service 2020, p. 13), there is no evidence that overutilization (Factor B) has impacted Ocmulgee skullcap. In addition, conditions across the species' range are likely to be hotter and subject to variable precipitation including extreme weather events. Although we do not have specific information regarding the species likely response to these effects of climate change, we expect that the effects of climate change will negatively affect Ocmulgee skullcap by reducing available resources such as water and limited competition. We do not consider climate change (Factor E) to be a primary risk factor for the species at this time; however, the effects of climate change, including drought and changes in rainfall patterns may affect the species in the future as changes become more extreme. We also reviewed the conservation efforts being undertaken for the habitat where Ocmulgee skullcap occurs. A brief summary of relevant stressors is presented below; for a more detailed discussion of our evaluation of the biological status of Ocmulgee skullcap and the influences that may affect its continued existence, refer to chapter 3 of the SSA report (Service 2020, pp. 12–20).

*Urbanization and Land Conversion*

Population growth and associated urbanization and development has increased in the Southeast at a rate 40% greater than the rest of the United States over the last 60 years. Much of this growth is in sprawling low-density, suburban areas encompassing large areas of single-family housing and infrastructure (Terando et al. 2014, p. e102261).

Land conversion for residential and commercial development, infrastructure, and pine plantation is associated with an increase in population. Two Ocmulgee skullcap populations occur near the city of Macon, Georgia and another population occurs near the city of Augusta, Georgia. Urbanization and land conversion can directly and indirectly impact Ocmulgee skullcap (Morris et al. 2000, pp. 31–32). Urbanization can result in the direct loss of individuals or a population. For example, one occurrence in the Savannah River watershed has been extirpated due to land conversion to pine plantation (Bradley 2019, p. 30), resulting in the loss of the species and its habitat from this location. In addition, urbanization of surrounding or adjacent areas can indirectly impact Ocmulgee skullcap, and two other known occurrences have experienced altered conditions, such as parking lot expansion and erosion on the bluff due to nearby residential development, due to surrounding areas being developed (i.e., urbanization) (Bradley 2019, pp. 27–29).

Further, land use patterns and urbanization near Ocmulgee skullcap occurrences can impact population resiliency. Urbanization modifies surrounding and nearby habitat conditions required by Ocmulgee skullcap by fostering the introduction of nonnative invasive species and increasing the amount and velocity of water runoff during precipitation events due to an increase of impervious surfaces. As further discussed below, nonnative invasive species compete with Ocmulgee skullcap for required resources. Increased runoff reduces the availability of nutrients and soil conditions required for successful reproduction, affecting Ocmulgee skullcap recruitment and resiliency. Because Ocmulgee skullcap grows along steep slopes, when the tops of bluffs are logged or cleared for other land uses, runoff and erosion are increased. Increased water flows containing sediments or other pollutants wash downslope and negatively affect the species' habitat by depositing sediments or pollutants in low gradient areas. In addition, erosion caused by logging and timber harvest activities as well as clearing of forested areas for development increases water runoff along the steep slopes where the

species occurs and may remove or damage Ocmulgee skullcap plants (Morris 1999, p. 3). Historical and recent (since 1999) logging on bluffs and resulting erosion occur near five Ocmulgee skullcap occurrences (Morris 1999, entire; Bradley 2019, p. 1–40, 73–78).

*Herbivory*

Over the last century, white-tailed deer abundance has increased substantially (Horsely et al. 2003, p. 1). White-tailed deer result in herbivory (including preferential browsing of native plants) and trampling, resulting in impacts to plant development and species density, diversity, and composition (Miller et al. 1992, entire; Horsely et al. 2003, p. 113; Averill et al. 2017, p. 2). For many *Scutellaria* species, including Ocmulgee skullcap, immature stems are often browsed by deer; this herbivory can prevent reproduction of that stem for the year if the plant does not flower (Bradley 2019, p. 77). In addition, individual plants may be pulled from the ground during browsing. In contrast, deer herbivory was found to have a potential positive influence on the *Scutellaria montana* (large-flowered skullcap), where deer browsed on all vegetation and large-flowered skullcap individuals benefited from the reduction in competing vegetation (Benson and Boyd 2014, p. 89). However, in 2018, deer herbivory was observed in every Ocmulgee skullcap population surveyed, with severe impacts on reproduction documented at some sites (Bradley 2019, entire). In previous surveys for the species, deer herbivory was documented (Morris 1999, p. 3; Snow 1999, p. 8); therefore, we conclude that deer herbivory continues to be an ongoing threat to Ocmulgee skullcap.

The direct impacts from white-tailed deer are widely noted across the range of the Ocmulgee skullcap with herbivory documented at various levels at numerous sites (Bradley 2019, entire). Survey reports note the presence of herbivory in over 75 percent of occurrences and point to herbivory by deer as a limiting factor for Ocmulgee skullcap populations (Cammack and Genachte 1999, entire; Morris 1999, entire; Snow 1999, entire; Morris et al. 2000; Snow 2001, entire; Bradley 2019, entire). When immature

stems of Ocmulgee skullcap are browsed by deer, the plant cannot flower and set seed, thus preventing reproduction of that stem for the year (Bradley 2019, p. 77).

In addition to direct impacts, deer browse affects the vegetative community through facilitation of browse-resilient species and potential increases in species that compete with Ocmulgee skullcap for resources (Horsely et al. 2003, p. 114–115). Encroaching development has decreased the amount and quality of forage and habitat for white-tailed deer, which can increase the probability of herbivory within Ocmulgee skullcap suitable habitat. Further, as development increases, restrictions on deer harvest in proximity to residential areas may lead to an increase in deer populations and associated herbivory of Ocmulgee skullcap.

Extirpation of the Ocmulgee skullcap occurrence at the Savannah River Bluffs Heritage Preserve in Aiken County, South Carolina, is attributed to severe herbivory by deer (Bradley 2019, p. 24). The preserve is the site of intense public recreation; therefore, deer harvest is not permitted within the preserve for public safety reasons. In addition, residents in housing developments adjacent to the preserve feed the deer and may maintain large piles of "deer corn" (Bradley 2019, p. 24). This abundance of food and lack of hunting pressure has resulted in an unnaturally dense deer population surrounding this occurrence. The habitat at this site is now a depauperate, almost barren herbaceous layer.

*Nonnative Invasive Species*

Invasive plant species limit the available resources (nutrients, space, sunlight, pollinators) necessary for Ocmulgee skullcap germination, growth, and reproduction. The introduction and spread of nonnative invasive species often occur with development (McKinney 2002, p. 888). However, nonnative invasive species can also be introduced from other types of adjacent land uses, such as agriculture and silviculture. This introduction occurs through the creation of areas of transition between natural and

anthropogenic affected habitat types and associated edge effects (Brown and Boutin 2009, p. 1654; Honu et al. 2009, p. 182). Nonnative invasive plant species have been documented at 8 of the 32 current Ocmulgee skullcap occurrences (Bradley 2019, entire; Morris 1999, entire).

Nonnative invasive species known to affect multiple Ocmulgee skullcap populations include: *Elaeagnus pungens* (thorny olive), *E. umbellate* (autumn olive), *Ligustrum sinense* (Chinese privet), *Lonicera japonica* (Japanese honeysuckle), and *Microstegium vimineum* (Japanese stiltgrass) (Morris et al. 2000, p. 31, Bradley 2019, p.77). On some sites, other nonnative invasive species, including *Pueraria montana* var. *lobate* (kudzu), *Vinca minor* (periwinkle), *Citrus trifoliata* (hardy orange), and *Pyrus communis* (common pear) pose localized threats to occurrences and/or populations (Bradley 2019, p. 77). These nonnative invasive species, when present, compete with Ocmulgee skullcap plants for required resources including sunlight, water, and space.

Intact forested habitat with a mature canopy and discrete disturbances provides an important buffer of suitable habitat for Ocmulgee skullcap populations to decrease encroachment of competing nonnative invasive plants. Competition with other native species and nonnative invasive species can restrict seedlings, vegetative plants, and flowering plants from obtaining the three key resources (water, sunlight, and soil) needed to grow and reproduce; therefore, healthy Ocmulgee skullcap individuals and populations need reduced competition.

*Climate Change*

In the southeast United States, several climate change models have projected more frequent drought, more extreme air temperatures, increased heavy precipitation events (e.g., flooding), and more intense storms (e.g., frequency of major hurricanes increases) (Burkett and Kusler 2000, p. 314; Klos et al. 2009, p. 699; IPCC 2013, pp. 3–29). When taking into account future climate projections for temperature and

precipitation where Ocmulgee skullcap occurs, warming is expected to be greatest in the summer, which is predicted to increase drought frequency. Additionally, annual mean precipitation is expected to increase, but only slightly, and thus, leading to a slight increase in flooding events (Alder and Hostetler 2013, unpaginated; IPCC 2013, entire; USGS 2020, unpaginated).

To understand how climate change is projected to change where Ocmulgee skullcap occurs, we used the National Climate Change Viewer (NCCV), a climate-visualization tool developed by the U.S. Geological Survey (USGS), to generate future climate projections across the range of the species. The NCCV is a web-based tool for visualizing projected changes in climate and water balance at watershed, state, and county scales (USGS 2020, unpaginated). To evaluate the effects of climate change in the future, we used projections from Representative Concentration Pathway (RCP) 4.5 and RCP8.5 to characterize projected future changes in climate and water resources, averaged for the State of Georgia encompassing the majority of the range of the Ocmulgee skullcap. The projections estimate change in mean annual values for maximum air temperature, minimum air temperature, monthly precipitation, and monthly runoff, among other factors, from historical (1950–2005) to future (2040–2060) time series.

Within the range of the Ocmulgee skullcap, the NCCV projects that under the RCP4.5 scenario, maximum air temperature will increase by 3.4 °Fahrenheit (°F) (1.9 °Celsius (°C), minimum air temperature will increase by 3.2 °F (1.8 °C), precipitation will increase by 0.2 in (5.36 millimeters (mm)) per month, and runoff will remain the same in the 2040–2060 time period (USGS 2020, unpaginated). Under the more extreme RCP8.5 emissions scenario, the NCCV projects that maximum air temperature will increase by 5.0 °F (2.8 °C), minimum air temperature will increase by 4.9 °F (2.7 °C), precipitation will increase by 0.2 in (5.36 mm) per month, and runoff will remain the same (USGS 2020, unpaginated). These estimates indicate that, despite projected

minimal increases in annual precipitation, anticipated increases in maximum and minimum air temperatures will likely offset those gains. Based on these projections, Ocmulgee skullcap will, on average, be exposed to increased air temperatures across its range, despite limited increases in precipitation in scenarios based on RCP4.5 and 8.5. The increase of maximum and minimum temperatures and variability in precipitation is expected to result in an increased probability of longer and more severe droughts in the future.

Within mixed hardwood forests where Ocmulgee skullcap occurs, drought conditions due to higher temperatures and variable precipitation could reduce the available resources required for plant survival including water and reduced competition. Extreme rainfall events may increase negative effects from flooding (pollutants) and erosion on the steep slopes where the species occurs. Increased competition from other species more tolerant of drought and extreme rainfall events will also limit the ability of Ocmulgee skullcap to produce viable seed and sustain populations in the wild over time. The species occupies hardwood forests with mature overstory and midstory canopy cover, and these more mesic, shaded habitats may provide a buffer to changes induced by climate change (increased temperature). If precipitation increases slightly, as predicted in some models, and extreme rainfall events are infrequent, the effects to Ocmulgee skullcap could even be beneficial, although this scenario is quite uncertain and climate change is not expected to benefit the species (Alder and Hostetler 2013, unpaginated).

The potential risks associated with long-term climate change as described above will affect ecosystem processes in Ocmulgee skullcap habitat, but there is uncertainty in how the ecosystems and species will respond. Overall, we do not expect the effects of climate change to be beneficial to the species, but the extent of the negative effects cannot be estimated with the available information on the species' responses to increased temperature and variability in precipitation. Likewise, the threshold or level at which

changes in temperature (prolonged hot weather) and rainfall (drought or extreme rainfall events) are expected to affect Ocmulgee skullcap is not available for the species or its congeners. We do not consider climate change to be a primary risk factor for the species at this time; however, the effects of climate change, including drought and changes in rainfall patterns may affect the species in the future as changes become more extreme.

*Small Population Size*

Some plant species, such as Ocmulgee skullcap, are naturally distributed as small and disjunct populations in heterogeneous landscapes because of their requirements for specific habitat conditions. The specific habitat requirement of Ocmulgee skullcap (i.e., calcium rich soil on forested bluffs) are disjunct and therefore populations are generally very small with 15 of 19 population occurrences having 50 or fewer individuals and 9 populations having 10 or fewer. Only three populations have more than 100 individuals (Service 2020, Appendix A). It is unknown whether Ocmulgee skullcap was historically more abundant but given the magnitude and scope of past habitat loss and modification, it is likely the species' numbers are lower than in the past. In addition, small and isolated populations offer limited nectar and pollen resources available to pollinators, making visitation to these sites more energetically expensive. Small, isolated populations of rare plant species often receive less pollinator visitation in comparison with larger or more widespread plant species (Ellstrand and Elam 1993, p. 227).

Small populations are vulnerable to habitat impacts and face a higher risk of extinction (Matthies et al. 2004, p. 481). Small population size may increase the extinction risk of individual populations due to stochasticity of demographic (fluctuations in population size) and genetic (fluctuations in gene expression) characteristics, environmental stochasticity (spatiotemporal fluctuations in environmental conditions), or impacts from catastrophic events (e.g., hurricanes) (Lande 1993, entire). Within each

population, genetic, phenotypic, and demographic structure must have adequate representation for populations to respond to environmental change over time.

Genetic stochasticity due to small population size can contribute to population extirpation, especially when population fragmentation disrupts gene flow. Two genetic consequences of small population size are increased genetic drift and inbreeding. Genetic drift is the random change in allele frequency that occurs because gametes transmitted from one generation to the next carry only a sample of the alleles present in the parental generation. In large populations, changes due to chance in allele frequency from drift are generally small. In contrast, in small populations (e.g., fewer than 100 individuals), allele frequencies may undergo large and unpredictable fluctuations due to drift that can erode genetic variation (diversity) over time and may decrease the potential for a species to persist in the face of environmental change (Ellstrand and Elam 1993, pp. 219, 224). Inbreeding, which can be caused by genetic drift, is the mating of related individuals. Inbreeding can lead to increased homozygosity in a population above levels expected under random mating (Barrett and Kohn 1991, p. 19). Small population size alone may not necessarily threaten the long-term viability of a given population, as small populations of some isolated endemic plant species are known to maintain stable populations for at least 40 years (Abeli 2010, p. 6). However, the synergistic effect of habitat fragmentation, reduced population size, and inbreeding may lead to inbreeding depression and reduced fitness.

*Conservation Efforts*

Ocmulgee skullcap is listed as threatened in Georgia (Patrick et al. 1995, pp. 173–174) and is not listed or otherwise protected in South Carolina. In Georgia, the Georgia Wildflower Preservation Act of 1973 protects Ocmulgee skullcap growing on State lands from cutting, digging, pulling, or removing unless the Georgia Department of Natural Resources has authorized such acts (Georgia Code 2015). The six populations occurring

on State owned or managed Wildlife Management Areas receive the benefits of this Wildflower Preservation Act protection.

Throughout the range of the species, portions of populations occur on lands owned and managed by State and Federal entities that prioritize conservation as a management objective. The Robins Air Force Base Integrated Natural Resource Management Plan specifically considers and manages for two Ocmulgee skullcap occurrences in hardwood bluff areas on the installation and a third occurrence also on the base (see **Exemptions**, below). The State conservation lands owned or leased and managed by Georgia Department of Natural Resources where Ocmulgee skullcap occurs include Yuchi Creek Wildlife Management Area (WMA), Echeconnee Natural Area, Ocmulgee WMA, and the Oaky Woods WMA. It is expected that the six Ocmulgee skullcap populations are positively affected by protection from development on these State-owned and managed lands and may also benefit when species-appropriate habitat management occurs on Federal lands.

*Synergistic and Cumulative Effects*

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on the species, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the current and future condition of the species. To assess the current and future condition of the species, we undertake an iterative analysis that encompasses and incorporates the threats individually and then accumulates and evaluates the effects of all the factors that may be influencing the species, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to the entire species, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

In addition to factors impacting Ocmulgee skullcap individually, it is likely that several of the above summarized threats are acting synergistically or cumulatively on the species. The combined impacts of multiple threats are likely more harmful than a single threat acting alone. Development and urbanization may remove or degrade habitat where Ocmulgee skullcap occurs and also bring an increase in encroaching nonnative invasive species and white-tailed deer due to hunting restrictions near inhabited areas. In addition, herbivory by white-tailed deer may change the community structure to favor plants more resistant to deer browse. The impacts of herbivory by white-tailed deer and competition from nonnative invasive species were recently noted in several populations (Bradley 2019, entire).

*Methods to Assess Current Condition*

To evaluate the biological status of Ocmulgee skullcap both currently and into the future, we assessed a range of conditions to consider the species' resiliency, redundancy, and representation. For the purposes of our analysis, representative units (RUs) were delineated to describe the breadth of known genetic, phenotypic, and ecological diversity within the species. We divided the current Ocmulgee skullcap range into two noncontiguous RUs, the Ocmulgee and Savannah River watersheds. We used NatureServe's Habitat-based Plant Element Occurrence Delineation Guidance (NatureServe 2020, entire) 2-km separation distance rule to delineate populations. We delineated populations of the Ocmulgee skullcap using occurrence data obtained from peer-reviewed articles, unpublished survey reports, and survey records (1961 to present) contained in agency and partner databases (i.e., Georgia and South Carolina Natural Heritage databases). Occurrences are defined as an individual or group of individuals in close proximity in an area not widely separated from other individuals. Rangewide, each of the 26 occurrences was buffered by a 2 kilometer (km) (1.24 mile (mi)) radius circle and occurrences with overlapping buffers were considered within the same population,

resulting in 19 current Ocmulgee skullcap populations (13 in the Ocmulgee RU and 6 in Savannah RU) (Table 1). Historical occurrence data are limited, but we assumed that the current distribution of Ocmulgee skullcap populations represents at least most of the historical range of the species within the Ocmulgee and Savannah watersheds in Georgia and South Carolina.

TABLE 1. Populations used to assess viability of the Ocmulgee skullcap in the Ocmulgee and Savannah Representative Units.

| **Ocmulgee Representative Unit Populations** | **Savannah Representative Unit Populations** |
|---|---|
| James Dykes Memorial | Burke South |
| Robins Air Force Base | Burke North |
| Savage Branch | Columbia Richmond |
| Bolingbroke Rest Area | Barney Bluff |
| Crooked Creek | Horse Creek |
| Jordan Creek | Prescott Lakes |
| Shellstone Creek | |
| Dry Creek | |
| Oaky Woods Wildlife Management Area North | |
| Oaky Woods Wildlife Management Area South | |
| River North Bluff | |
| South Shellstone Creek | |
| Tributary to Richland Creek | |

The Ocmulgee skullcap needs multiple, sufficiently resilient populations distributed across its range to maintain viability. A sufficiently resilient population exhibits high or moderate resiliency and is characterized by 60 or more individuals in stable or increasing numbers of widespread occurrences with no or few invasive species and no or minor change in habitat condition. A number of factors influence whether Ocmulgee skullcap populations exhibit resiliency to stochastic events. These factors include: (1) Number of individuals in all occurrences within a population, (2) number of flowering individuals (reproductive adults) within a population, (3) number of

occurrences (groups of individuals) within a population, (4) change in number of occurrences within a population over time, and (5) condition of habitat, which is directly related to growth, survival, and reproductive success (Service 2020, p. 23). To capture important aspects of the habitat condition, we used two factors, both of which characterize the quality and quantity of native herbaceous ground cover: (1) Presence of nonnative invasive plant species (competition) and (2) presence of deer herbivory (browsing) (Service 2020, p. 23).

We assessed representation for the Ocmulgee skullcap based on the potential adaptive capacity of the species as expressed in the number of current populations across the historical range of the species and within representative units. Finally, we assessed Ocmulgee skullcap redundancy (the ability of a species to withstand catastrophic events) by evaluating the number and distribution of sufficiently resilient populations throughout the species' range.

*Current Conditions of Ocmulgee Skullcap*

As described above, we delineated the range of Ocmulgee skullcap into two representative units and 19 populations for our analyses. Having a greater number of self-sustaining populations distributed across the known range of the species is associated with an overall higher viability of the species into the future. We determined four condition classes for Ocmulgee skullcap resiliency: very low, low, moderate, and high. A population exhibiting high resiliency is characterized by 100 or more individuals, with multiple, widespread clusters of individuals, an increasing trend in the number of occurrences, few or no nonnative invasive plant species, no evident deer browse impacts, and no substantial change in habitat condition. Moderate resiliency populations are characterized by 60–100 individuals, with a few, somewhat widespread clusters of individuals, stable number of occurrences, few or no nonnative invasive plant species, evident deer browse impacts, and only minor changes in habitat condition. A population

in low resiliency is characterized by 40–59 individuals, with two clusters of individuals, a decreasing trend in the number of occurrences, presence of nonnative invasive plant species and deer browse impacts, and moderate change in habitat condition. A very low resiliency population is characterized by <40 individuals in a single, isolated site with evidence of nonnative invasive plant species and deer browse, and substantial change in habitat condition. Resiliency categories are further described in the SSA report (Service 2020, p. 24. Table 4-1).

Currently, 16 of 19 populations within the species' range exhibit low or very low resiliency (see Table 2, below). One population within the Ocmulgee RU exhibits moderate resiliency, and two populations within the Savannah RU exhibit moderate or high resiliency (Table 2). The majority of Ocmulgee skullcap populations of the Ocmulgee skullcap have generally low resilience to stochastic events. Two occurrences within extant populations in the Savannah RU have been extirpated because of deer browsing and land conversion to pine plantation; currently, there are no known extirpated populations.

The Ocmulgee skullcap is found in two non-contiguous RUs (watersheds); and currently occupies the known historical range of the species. Only two occurrences within two populations have been extirpated, but those populations are still extant. Thus, representation may be slightly reduced from the species' historical condition. Based on available information, we determined the Ocmulgee skullcap has adaptive capacity or ability to adapt to changing environmental conditions, given that 19 populations occur in two watersheds in two states and no populations have been lost from the known historical range. Sixteen of 19 known populations currently exhibit low to very low resiliency across the range, but these populations are distributed across two watersheds in two states across the historical range. Overall, the Ocmulgee skullcap current condition is

characterized by low or reduced resiliency, moderate representation and multiple redundant populations.

TABLE 2. Current resiliency category of each Ocmulgee skullcap population (Service 2020).

| Population Name | Number of Individuals | Overall Resiliency Category* |
|---|---|---|
| **Ocmulgee Representative Unit (Ocmulgee River watershed)** | | |
| James Dykes Memorial | 54 | Moderate |
| Robins Air Force Base | 3 | Low |
| Savage Branch | 50 | Low |
| Bolingbroke Rest Area | 8 | Low |
| Crooked Creek | 31 | Low |
| Jordan Creek | 50 | Low |
| Shellstone Creek | 46 | Low |
| Dry Creek | 10 | Very low |
| Oaky Woods WMA North | 1 | Very low |
| Oaky Woods WMA South | 1 | Very low |
| River North Bluff | 1 | Very low |
| South Shellstone Creek | 15 | Very low |
| Tributary to Richland Creek | 6 | Very low |
| **Savannah Representative Unit (Savannah River watershed)** | | |
| Burke South | 319 | High |
| Burke North | 112 | Moderate |
| Columbia Richmond | 450 | Low |
| Barney Bluff | 50 | Low |
| Horse Creek | 1 | Very low |
| Prescott Lakes | 0 | Very low |

*Overall resiliency category includes the demographic metrics of the number of individuals, number of occurrences, and change in number of occurrences, and the habitat metric assessment of native herbaceous groundcover/habitat condition.

*Future Scenarios*

Given the current conditions of Ocmulgee skullcap and the expected influences on viability, we projected the resiliency, redundancy, and representation of Ocmulgee skullcap under three plausible future scenarios. Our projections incorporate the effects of development (urbanization) and habitat management actions that reduce nonnative

invasive species and herbivory from white-tailed deer. We developed three plausible scenarios to assess the future viability of Ocmulgee skullcap populations and predicted how those scenarios affect to future populations' resiliency, representation, and redundancy. Future fluctuations in precipitation and increased annual average temperatures as a result from climate change may also impact the species, but these were not included in our future predictions due to uncertainty surrounding the effects to the species (Service 2020, pp. 15–17).

We evaluated each of the scenarios in terms of how it would be expected to affect Ocmulgee skullcap resiliency, redundancy, and representation of the species in 2040 and 2060. We chose a predictive time horizon of 2040 and 2060 based on the average lifespan of the species (5–8 years), confidence in projections and models of factors influencing the species' viability, and certainty in predictions of the species' response to those factors. We assessed the projected urbanization under two development scenarios using the SLEUTH model-a low development projection that includes areas with a greater than 90 percent probability of being urbanized and a high development projection that includes areas with a greater than 10 percent probability of being urbanized. We then categorized the predicted loss of suitable habitat within the population area extent due to urbanization as high (67–100%), medium (34–67%), or low (0–33%). The habitat loss projections fell into one of two result patterns; one pattern represents the low development projection in 2040, the second represents the low development projection in 2060, the high development projection in 2040, and the high development projection in 2060. Thus, the low development projection results encompass both the upper and lower plausible bounds for the urbanization and development scenarios. To avoid redundancy in our analysis, we used the low development projection in all three future condition scenarios and note that the low development scenario projections for 2060 also represent the high urbanization probability for 2040 and 2060. All three scenarios incorporate the risk level of

urbanization and development predicted by the low development probability model in both timesteps, but differ in the level of habitat management (nonnative invasive species control and white-tailed deer harvest) implemented. The scenarios we evaluated for Ocmulgee skullcap are as follows (scenarios are discussed in greater detail in the SSA report (Service 2020, p. 36–42)):

- Scenario 1 (Decreased Management and Conservation): the current level of habitat management decreases over time; no additional populations are protected; and there is no augmentation and/or reintroduction of populations;
- Scenario 2 (Status Quo Management): the existing level of habitat management remains constant over time; no additional populations are protected; propagation and seed storage efforts remain intact, but no populations are augmented or reintroduced in the historical range; and
- Scenario 3 (Increased Management and Conservation): additional management efforts (increased removal of nonnative invasive species; increased white-tailed deer harvest); additional populations and suitable habitats are protected; and populations are augmented and/or reintroduced on protected lands within the historical range.

Projected urbanization and three plausible future management scenarios (decreased, status quo, and increased levels of management) were evaluated to predict future Ocmulgee skullcap viability. Under Scenario 1 (decreased management), resiliency is decreased for all populations, 10 populations are predicted to be extirpated by 2040, and an additional population is predicted to be extirpated by 2060 (Table 3). All populations experience a decline in resiliency with one moderately resilient population remaining in both time steps. No highly resilient populations will remain in 2040 and 2060. Overall, redundancy is expected to decline in Scenario 1 with fewer, less resilient Ocmulgee skullcap populations with a narrower distribution across the species' range.

Ten populations are projected to be extirpated in the Ocmulgee RU and three are expected to be extirpated in the Savannah RU, with all populations losing resiliency and affecting redundancy. With over half of all populations predicted to be extirpated, representation is expected to decline.

Under Scenario 2 (status quo management), six populations experience declines in resiliency in 2040 and eight populations experience declines in resiliency in 2060 (Table 3). No populations are expected to increase in resiliency under Scenario 2. Five populations are predicted to be extirpated by 2040 and six populations are predicted to be extirpated by 2060. Three populations with high or moderate resiliency remain under Scenario 2, with the remaining extant populations exhibiting low or very low resiliency at 2040 and 2060, respectively. The populations predicted to be extirpated occur across the distribution in the Ocmulgee RU (five populations) and in the upstream portion of the Savannah RU (one population). Given reduced species resiliency and extirpation of populations in both RUs, species redundancy is predicted to be reduced from current levels under Scenario 2 with status quo management and conservation efforts. Five populations in the Ocmulgee RU and one population in the Savannah RU are predicted to be extirpated under Scenario 3, with most populations declining in resiliency and affecting species redundancy. With fewer populations in both RUs and reduced abundance in remaining populations, species' representation is expected to decline from the current moderate level.

Under Scenario 3 (increased management), resiliency changes are mixed, but overall, there is an increase in population resiliency. However, one population is predicted to be extirpated by 2040 and three populations are predicted to be extirpated by 2060 in this scenario. One population is projected to the extirpated in 2040 and three populations are projected to be extirpated in 2060 in the Ocmulgee RU, with no extirpations projected in the Savannah RU. In addition, the increased management and

conservation efforts scenario includes augmentation, establishment, or reintroduction of additional populations within the species' historical range, providing increased redundancy for the species. Representation for the species is expected to remain at the moderate level in Scenario 3, with population extirpations countered by reintroduction and establishment of new populations.

In all scenarios, the loss of sufficiently resilient populations within both RUs indicates a future decline in the species' adaptive capacity (representation). In addition, when populations are extirpated, connectivity between populations is reduced, further limiting potential genetic exchange between populations. Under all three plausible future scenarios, the number of populations is decreased and the distribution of populations across the species' range is reduced. However, extant populations remain in both RUs under the conditions assessed, although most populations exhibit low resiliency. The predicted declines in resiliency and extirpation of populations within both representative units indicates a future decline in the species' redundancy. Therefore, Ocmulgee skullcap is at an increased risk of extirpation from a catastrophic event.

TABLE 3. Future resiliency of 19 Ocmulgee skullcap populations with low future development risk and under three future management scenarios at 2040 and 2060. Changes between population resiliency at 2040 and 2060 are shown in **bold**.

| **Population Name** | **Current Resiliency** | **Scenario 1** | **Scenario 2** | **Scenario 3** |
|---|---|---|---|---|
| | | **2040/2060** | **2040/2060** | **2040/2060** |
| **Ocmulgee RU** | | | | |
| James Dykes Memorial | Moderate | Low/ Low | Moderate/ Moderate | High/ High |
| Robins Air Force Base | Low | Very Low/ Very Low | Low/ Low | Moderate/ Moderate |
| Savage Branch | Low | Extirpated/ Extirpated | Extirpated/ Extirpated | Extirpated/ Extirpated |
| Bolingbroke Rest Area | Low | Very Low/ Very Low | Low/ Low | Moderate/ Moderate |
| Crooked Creek | Low | Very Low/ Very Low | Low/ Low | Moderate/ Moderate |
| Jordan Creek | Low | Very Low/ Very Low | Low/ Low | Moderate |

| | | | | |
|---|---|---|---|---|
| Shellstone Creek | Low | Very Low/ Very Low | Low/ Low | Moderate/ Moderate |
| Dry Creek | Very Low | Extirpated/ Extirpated | Extirpated/ Extirpated | **Low/ Extirpated** |
| Oaky Woods WMA North | Very Low | Extirpated/ Extirpated | Extirpated/ Extirpated | Moderate/ Moderate |
| Oaky Woods WMA South | Very Low | Extirpated/ Extirpated | Extirpated/ Extirpated | **Low/ Extirpated** |
| River North Bluff | Very Low | Extirpated/ Extirpated | Extirpated/ Extirpated | Very Low/ Very Low |
| South Shellstone Creek | Very Low | Extirpated/ Extirpated | Very Low/ Very Low | Low/ Low |
| Tributary to Richland Creek | Very Low | Extirpated/ Extirpated | Very Low/ Very Low | Low/ Low |
| **Savannah RU** | | | | |
| Burke South | High | Moderate/ Moderate | High/ High | High/ High |
| Burke North | Moderate | Low/ Low | Moderate/ Moderate | High/ High |
| Columbia Richmond | Low | **Very Low/ Extirpated** | **Low/ Very Low** | **Moderate/ Low** |
| Barney Bluff | Low | Extirpated/ Extirpated | Very Low/ Very Low | Low/ Low |
| Horse Creek | Very Low | Extirpated/ Extirpated | **Very Low/ Extirpated** | **Low/ Very Low** |
| Prescott Lakes | Very Low | Extirpated/ Extirpated | Very Low/ Very Low | Low/ Low |

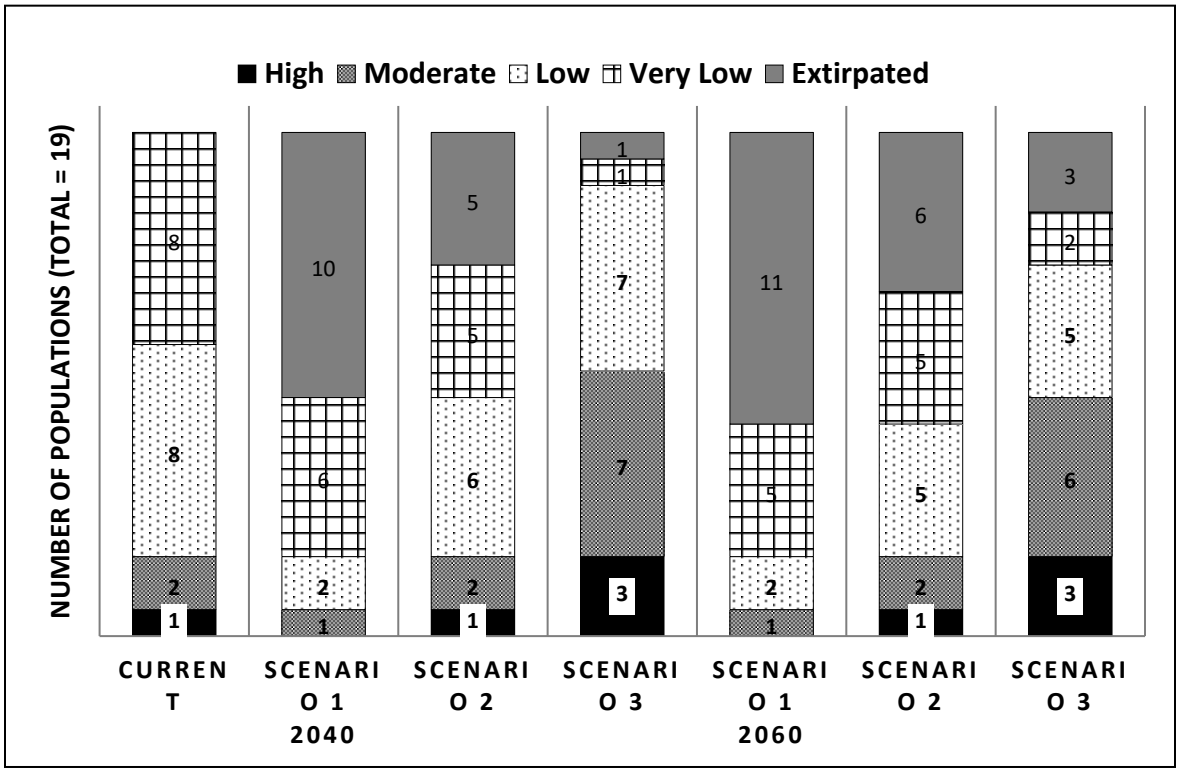


Figure 1. Future resiliency for 19 Ocmulgee skullcap populations at 2040 and 2060 under three future scenarios. Scenario 1 is decreased management; Scenario 2 is status quo management; and Scenario 3 is increased management. Current population resiliency is shown for comparison.

**Determination of Ocmulgee Skullcap Status**

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of an endangered species or a threatened species. The Act defines an "endangered species" as a species in danger of extinction throughout all or a significant portion of its range, and a "threatened species" as a species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of endangered species or threatened species because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) Overutilization for commercial, recreational, scientific, or educational purposes; (C) Disease or predation; (D) The inadequacy of existing regulatory mechanisms; or (E) Other natural or manmade factors affecting its continued existence.

*Status Throughout All of Its Range*

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats, and the cumulative effect of the threats to the Ocmulgee skullcap. Our review of the best available information indicates Ocmulgee skullcap occurs in 19 extant populations in 2 representative units, the Ocmulgee River watershed in Georgia (13 populations) and the Savannah River watershed in Georgia/South Carolina (6 populations), across the historical range of the species. Recently, there have been two extirpations of occurrences within currently extant populations in the Savannah River watershed. One occurrence extirpation resulted from

land use conversion to a pine plantation and the other from severe deer herbivory. Ocmulgee skullcap populations are generally small. At present, 3 extant populations contain >100 individuals and 15 extant populations have 50 or fewer than 50 individuals. Generally, the Ocmulgee skullcap has low resilience to stochastic events at the population level. Sixteen of the known populations have low abundance and exhibit low or very low resiliency to stochastic events. Of the remaining three (out of 19) extant populations, one population in the Savannah RU has high resiliency and two have moderate resiliency (one in each the Ocmulgee and Savannah RUs). As stated previously, Ocmulgee skullcap populations are distributed in two watersheds across the historical range of the species. We determined the Ocmulgee skullcap has sufficient representation based on the species occurrences across the range and the lack of population extirpations. The species-level redundancy was determined to be reduced from historical condition due to the loss of two occurrences. Although populations are distributed across the species' range, the resiliency of most populations is low or very low. Overall, the species has sufficient redundancy and the ability to withstand catastrophic events.

Ocmulgee skullcap faces threats from habitat degradation or loss as a result of development and urbanization (Factor A), competition and encroachment from nonnative invasive species (Factor A and E) and from herbivory by white-tailed deer (Factor C). These threats, which are expected to be exacerbated by the small population size and existing regulatory mechanisms that do not adequately addressing the threats, were important factors in our assessment of the future viability of Ocmulgee skullcap. The existing regulatory mechanisms (Factor D) are not adequately addressing these threats to the extent that listing is not warranted. Overutilization (Factor B), disease (Factor C), or climate change (Factor E) are not currently affecting Ocmulgee skullcap populations or are projected to do so in the future.

While threats are currently acting on most of the Ocmulgee skullcap populations throughout its range, we find that the Ocmulgee skullcap is not currently in danger of extinction throughout its range, because the species current representation and redundancy is only slightly reduced from historical conditions (two occurrences extirpated), and currently includes one highly resilient population and two moderately resilient populations. Further, an additional 16 extant populations, albeit with low to very low resiliency, occur across the historical range of the species. In addition, given that the species occurs in two different watersheds (two representative units), a single catastrophic event is not likely to impact both units at the same time. The current condition still provides for resiliency, redundancy, and representation such that it is not currently at risk of extinction throughout its range. Therefore, we did not find that Ocmulgee skullcap is currently in danger of extinction throughout all of its range, based on the current condition of the species; thus, an endangered status is not appropriate.

However, we expect that resiliency, redundancy, and representation for the Ocmulgee skullcap will be reduced from its current condition in the foreseeable future. In the future, an increase in urbanization, competition from nonnative plants, and herbivory by white-tailed deer in and near the habitat where Ocmulgee skullcap occurs is expected. Given current and projected decreases in resiliency, populations would become more vulnerable to extirpation from stochastic events, in turn, resulting in concurrent losses in representation and redundancy. The three plausible future scenarios, which projected urbanization and changes in management of the species' habitat conditions and population factors, suggest potential extirpation of as many as 11 of the 19 currently extant populations and a further loss of resiliency in all populations. The future scenario expected to be most beneficial to the species (through increased management) projected the loss of three populations by 2060 with some populations exhibiting increased resiliency.

The current threats to Ocmulgee skullcap are expected to continue into the future. To assess future conditions, we used a 40-year timeframe to account for reasonable predictions of threats continuing into the future based on our examination of empirical data in the recent past and takes into consideration the biology of the species (multiple generations of a plant with a 5–8-year lifespan). Based on the average lifespan of the species, confidence in projections and models of factors influencing the species' viability, and certainty in predictions of the species' response to those factors, we assessed the future condition of Ocmulgee skullcap at the predictive time horizon of 2060. By using the 40-year time step for future scenarios, we represented a minimum of six generations to account for normal variation in plant reproduction and annual variation in climate conditions.

Our analysis of the best available information determined the threats currently acting upon the Ocmulgee skullcap are expected to continue into the foreseeable future, some of which (urbanization) are reasonably expected to worsen over time, thus reducing the species' resiliency, redundancy, and representation. Overall, the current threats acting on the Ocmulgee skullcap and its habitat are expected to continue, and there are no indications that these threats would lessen or that declining population trends would be reversed. These threats and the effects to Ocmulgee skullcap put the species at risk of extinction in the foreseeable future due to its limited resiliency, representation, and redundancy. Based on our assessment, the Ocmulgee skullcap is likely to become an endangered species within the foreseeable future throughout all of its range.

After evaluating threats to the species and assessing the cumulative effect of the threats under the section 4(a)(1) factors, we conclude that the risk factors acting on the Ocmulgee skullcap and its habitat, either singly or in combination, are not of sufficient imminence, scope, or magnitude to indicate the species is in danger of extinction now.

Thus, after assessing the best available information, we conclude that Ocmulgee skullcap is not currently in danger of extinction but is likely to become in danger of extinction within the foreseeable future throughout all of its range.

*Status Throughout a Significant Portion of Its Range*

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. The court in *Center for Biological Diversity v. Everson*, 2020 WL 437289 (D.D.C. Jan. 28, 2020) (*Center for Biological Diversity*), vacated the aspect of the Final Policy on Interpretation of the Phrase "Significant Portion of Its Range" in the Endangered Species Act's Definitions of "Endangered Species" and "Threatened Species" (Final Policy) (79 FR 37578; July 1, 2014) that provided that the Service does not undertake an analysis of significant portions of a species' range if the species warrants listing as threatened throughout all of its range. Therefore, we proceed to evaluating whether the species is endangered in a significant portion of its range—that is, whether there is any portion of the species' range for which both (1) the portion is significant; and (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the "significance" question or the "status" question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of the species' range.

Following the court's holding in *Center for Biological Diversity*, we now consider whether there are any significant portions of the species' range where the species is in danger of extinction now (i.e., endangered). In undertaking this analysis for Ocmulgee skullcap, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the

species faces to identify any portions of the range where the species is endangered.

For Ocmulgee skullcap, we considered whether the threats are geographically concentrated in any portion of the species' range at a biologically meaningful scale. We examined the following threats: habitat loss and fragmentation due to development and urbanization (Factor A); nonnative invasive plants (Factor A and E); and herbivory (Factor C), including cumulative effects. We found no concentration of threats in any portion of the Ocmulgee skullcap's range at a biologically meaningful scale. Ocmulgee skullcap populations affected by invasive plants and herbivory are broadly and evenly distributed across both representative units and the species' range. Populations on protected lands are considered less at risk from stressors associated with current and future development due to long-term management plans, conservation easements in perpetuity, or other protective mechanisms. Nonetheless, Ocmulgee skullcap populations on protected lands (8 of 19 populations) occur throughout the range of the species and have comparable resiliency to populations on non-protected lands, with the exception of one population that exhibits high current resiliency on protected lands.

Thus, there are no portions of the species' range where the species has a different status from its rangewide status. Therefore, no portion of the species' range provides a basis for determining that the species is in danger of extinction in a significant portion of its range, and we determine that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range. This does not conflict with the courts' holdings in *Desert Survivors* v. *U.S. Department of the Interior*, 321 F. Supp. 3d 1011, 1070-74 (N.D. Cal. 2018) and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d 946, 959 (D. Ariz. 2017) because, in reaching this conclusion, we did not need to consider whether any portions are significant and, therefore, did not apply the aspects of the Final Policy's definition of "significant" that those court decisions held were invalid.

*Determination of Status*

Our review of the best available scientific and commercial information indicates that the Ocmulgee skullcap meets the definition of a threatened species. Therefore, we propose to list the Ocmulgee skullcap as a threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

**Available Conservation Measures**

Conservation measures provided for species listed as endangered or threatened species under the Act include recognition as a listed species, planning and implementation of recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Section 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

The recovery planning process begins with development of a recovery outline made available to the public soon after a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions while a recovery plan is being developed. Recovery teams (composed of species experts, Federal and State

agencies, nongovernmental organizations, and stakeholders) may be established to develop and implement recovery plans. The recovery planning process involves the identification of actions that are necessary to halt and reverse the species' decline by addressing the threats to its survival and recovery. The recovery plan identifies recovery criteria for review of when a species may be ready for reclassification from endangered to threatened ("downlisting") or removal from protected status ("delisting"), and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery outline, draft recovery plan, final recovery plan, and any revisions will be available on our website as they are completed (*https://www.fws.gov/endangered*), or from our Georgia Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

If this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the State(s) of Georgia and South Carolina would be eligible for Federal funds to implement management actions that promote the

protection or recovery of the Ocmulgee skullcap. Information on our grant programs that are available to aid species recovery can be found at: *https://www.fws.gov/grants*.

Although the Ocmulgee skullcap is only proposed for listing under the Act at this time, please let us know if you are interested in participating in recovery efforts for this species. Additionally, we invite you to submit any new information on this species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as an endangered or threatened species and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with the Service.

Federal agency actions within the species' habitat that may require conference or consultation or both as described in the preceding paragraph include management and any other landscape-altering activities on Federal lands administered by the issuance of a permit under section 404 Clean Water Act (33 U.S.C. 1251 *et seq*.) by the U.S. Army Corps of Engineers, and construction and maintenance of roads or highways by the Federal Highway Administration.

It is our policy, as published in the *Federal Register* on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a proposed listing on proposed and ongoing activities within the range of the species proposed for listing. The Act allows the Secretary to promulgate protective regulations for threatened species pursuant to section 4(d) of the Act. The discussion below regarding protective regulations under section 4(d) of the Act complies with our policy.

**II. Proposed Rule Issued Under Section 4(d) of the Act**

**Background**

Section 4(d) of the Act contains two sentences. The first sentence states that the Secretary shall issue such regulations as she deems necessary and advisable to provide for the conservation of species listed as threatened. The U.S. Supreme Court has noted that statutory language similar to the language in section 4(d) of the Act authorizing the Secretary to take action that she "deems necessary and advisable" affords a large degree of deference to the agency (see *Webster* v. *Doe*, 486 U.S. 592, 600 (1988)). Conservation is defined in the Act to mean the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Additionally, the second sentence of section 4(d) of the Act states that the Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case of plants. Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to the Service when adopting one or more of the prohibitions under section 9.

The courts have recognized the extent of the Secretary's discretion under this standard to develop rules that are appropriate for the conservation of a species. For example, courts have upheld, as a valid exercise of agency authority, rules developed under section 4(d) that included limited prohibitions against takings (see *Alsea Valley Alliance* v. *Lautenbacher*, 2007 WL 2344927 (D. Or. 2007); *Washington Environmental Council* v. *National Marine Fisheries Service*, 2002 WL 511479 (W.D. Wash. 2002)). Courts have also upheld 4(d) rules that do not address all of the threats a species faces (see *State of Louisiana* v. *Verity*, 853 F.2d 322 (5th Cir. 1988)). As noted in the legislative history when the Act was initially enacted, "once an animal is on the threatened list, the Secretary has an almost infinite number of options available to [her] with regard to the permitted activities for those species. [She] may, for example, permit taking, but not importation of such species, or [she] may choose to forbid both taking and importation but allow the transportation of such species" (H.R. Rep. No. 412, 93rd Cong., 1st Sess. 1973).

The provisions of this proposed 4(d) rule would promote conservation of the Ocmulgee skullcap by encouraging management of the landscape in ways that meet both land management considerations and the conservation needs of the Ocmulgee skullcap, specifically by providing exceptions for incidental take for State agency conservation actions, scientific permits for research, and use of cultivated-origin seeds for education. The provisions of this proposed rule are one of many tools that we would use to promote the conservation of the Ocmulgee skullcap. This proposed 4(d) rule would apply only if and when we make final the listing of the Ocmulgee skullcap as a threatened species.

As mentioned previously in **Available Conservation Measures,** section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse

modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action that is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of Federal actions that are subject to the section 7 consultation process are actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq*.) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency—do not require section 7 consultation.

These requirements are the same for a threatened species with a species-specific 4(d) rule. For example, a Federal agency's determination that an action is "not likely to adversely affect" a threatened species will require the Service's written concurrence. Similarly, a Federal agency's determination that an action is "likely to adversely affect" a threatened species will require formal consultation and the formulation of a biological opinion.

**Provisions of the Proposed 4(d) Rule**

Exercising the Secretary's authority under section 4(d) of the Act, we have developed a proposed rule that is designed to address the Ocmulgee skullcap's conservation needs. As discussed previously in the Summary of Biological Status and Threats, we have concluded that the Ocmulgee skullcap is likely to become in danger of

extinction within the foreseeable future primarily due to development and urbanization, increasing prevalence of nonnative invasive plants, herbivory, and the interaction between these elements. Specifically, a number of activities have the potential to affect the Ocmulgee skullcap, including land clearing for development, agriculture and silviculture, and actions related to urbanization and development. Section 4(d) requires the Secretary to issue such regulations as she deems necessary and advisable to provide for the conservation of each threatened species and authorizes the Secretary to include among those protective regulations any of the prohibitions that section 9(a)(2) of the Act prescribes for endangered species. We find that, if finalized, the protections, prohibitions, and exceptions in this proposed rule as a whole satisfy the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the Ocmulgee skullcap.

The protective regulations we are proposing for the Ocmulgee skullcap incorporate prohibitions from section 9(a)(2) to address the threats to the species. Section 9(a)(2) prohibits the following activities for endangered plants: importing or exporting; certain acts related to removing, damaging, and destroying; delivering, receiving, transporting, or shipping in interstate or foreign commerce in the course of commercial activity; or selling or offering for sale in interstate or foreign commerce. These proposed protective regulations include all of these prohibitions for the Ocmulgee skullcap because the Ocmulgee skullcap is at risk of extinction in the foreseeable future and putting these prohibitions in place will help to preserve remaining populations, slowing their rate of potential decline, and decreasing synergistic, negative effects from other stressors. Prohibiting import and export, transportation, and commerce of the species limits unauthorized propagation and distribution. As a whole, the proposed 4(d) rule would help in the efforts to recover the species.

In particular, this proposed 4(d) rule would provide for the conservation of the Ocmulgee skullcap by prohibiting the following activities, unless they fall within specific exceptions or are otherwise authorized or permitted: remove and reduce to possession the species from areas under Federal jurisdiction; maliciously damage or destroy the species on any such area; remove, cut, dig up, or damage or destroy the species on any other area in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law; importing or exporting; certain acts related to interstate or foreign commerce in the course of commercial activity; or selling or offering for sale in interstate or foreign commerce.

The exceptions to the prohibitions would include all the general exceptions to the prohibition against removing and reducing to possession endangered plants, as set forth in 50 CFR 17.61.

Despite these prohibitions regarding threatened species, we may under certain circumstances issue permits to carry out one or more otherwise-prohibited activities, including those described above. The regulations that govern permits for threatened plants state that the Director may issue a permit authorizing any activity otherwise prohibited with regard to threatened species (50 CFR 17.72). Those regulations also state that the permit shall be governed by the provisions of § 17.72 unless a special rule applicable to the plant is provided in §§ 17.73 to 17.78. Therefore, permits for threatened species are governed by the provisions of § 17.72 unless a species-specific 4(d) rule provides otherwise. However, under our recent revisions to § 17.71, the prohibitions in § 17.71(a) will not apply to any plant listed as a threatened species after September 26, 2019. As a result, for threatened plant species listed after that date, any protections must be contained in a species-specific 4(d) rule. We did not intend for those revisions to limit or alter the applicability of the permitting provisions in § 17.72, or to require that every species-specific 4(d) rule spell out any permitting provisions that apply to that species

and species-specific 4(d) rule. To the contrary, we anticipate that permitting provisions would generally be similar or identical for most species, so applying the provisions of § 17.72 unless a species-specific 4(d) rule provides otherwise would likely avoid substantial duplication. Moreover, this interpretation brings § 17.72 in line with the comparable provision for wildlife at 50 CFR 17.32, in which the second sentence states that the permit shall be governed by the provisions of § 17.32 unless a special rule applicable to the wildlife, appearing in 50 CFR 17.40 to 17.48, provides otherwise. Under 50 CFR 17.72 with regard to threatened plants, a permit may be issued for the following purposes: for scientific purposes, to enhance propagation or survival, for economic hardship, for botanical or horticultural exhibition, for educational purposes, or for other purposes consistent with the purposes and policy of the Act. Additional statutory exemptions from the prohibitions are found in sections 9 and 10 of the Act.

We recognize the beneficial and educational aspects of activities with seeds of cultivated plants, which generally enhance the propagation of the species and, therefore, would satisfy permit requirements under the Act. We intend to monitor the interstate and foreign commerce and import and export of these specimens in a manner that will not inhibit such activities, providing the activities do not represent a threat to the survival of the species in the wild. In this regard, seeds of cultivated specimens would not be subject to the prohibitions above, provided that a statement that the seeds are of "cultivated origin" accompanies the seeds or their container (e.g., the seeds could be moved across State lines or between territories for purposes of seed banking or to use for outplanting without additional regulations) (50 CFR 17.71(a)).

We recognize the special and unique relationship with our State natural resource agency partners in contributing to conservation of listed species. State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened, and candidate species of wildlife and plants. State agencies,

because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist the Service in implementing all aspects of the Act. In this regard, section 6 of the Act provides that the Service shall cooperate to the maximum extent practicable with the States in carrying out programs authorized by the Act. Therefore, any qualified employee or agent of a State conservation agency that is a party to a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, would be able to conduct activities designed to conserve the Ocmulgee skullcap, which may result in otherwise prohibited activities without additional authorization.

Nothing in this proposed 4(d) rule would change in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or our ability to enter into partnerships for the management and protection of the Ocmulgee skullcap. However, interagency cooperation may be further streamlined through planned programmatic consultations for the species between us and other Federal agencies, where appropriate. We ask the public, particularly State agencies and other interested stakeholders that may be affected by the proposed 4(d) rule, to provide comments and suggestions regarding additional guidance and methods that we could provide or use, respectively, to streamline the implementation of this proposed 4(d) rule (see **Information Requested**, above).

## III. Critical Habitat

### Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species; and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Our regulations at 50 CFR 424.02 define the geographical area occupied by the species as an area that may generally be delineated around species' occurrences, as determined by the Secretary (i.e., range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (e.g., migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals). Additionally, our regulations at 50 CFR 424.02 define the word "habitat," for the purposes of designating critical habitat only, as the abiotic and biotic setting that currently or periodically contains the resources and conditions necessary to support one or more life processes of a species. We proposed to rescind this definition on October 27, 2021 (86 FR 59353); however, for purposes of this rule, we have determined the proposed critical habitat designation meets this definition.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse

modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation also does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the Federal agency would be required to consult with the Service under section 7(a)(2) of the Act. However, even if the Service were to conclude that the proposed activity would result in destruction or adverse modification of the critical habitat, the Federal action agency and the landowner are not required to abandon the proposed activity, or to restore or recover the species; instead, they must implement "reasonable and prudent alternatives" to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat).

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. The implementing regulations at 50 CFR 424.12(b)(2) further delineate unoccupied critical habitat by setting out three specific parameters: (1) when designating critical habitat, the Secretary will first evaluate areas occupied by the species; (2) the

Secretary will only consider unoccupied areas to be essential where a critical habitat designation limited to geographical areas occupied by the species would be inadequate to ensure the conservation of the species; and (3) for an unoccupied area to be considered essential, the Secretary must determine that there is a reasonable certainty both that the area will contribute to the conservation of the species and that the area contains one or more of those physical or biological features essential to the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the *Federal Register* on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information from the SSA report and information developed during the listing process for the species. Additional information sources may include any generalized conservation strategy, criteria, or outline that may have been developed for the species; the recovery plan for the species; articles in peer-reviewed journals; conservation plans developed by States and counties; scientific status surveys and studies; biological assessments; other unpublished materials; or experts' opinions or personal knowledge.

As the regulatory definition of "habitat" reflects (50 CFR 424.02), habitat is dynamic, and species may move from one area to another over time. We recognize that

critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for the recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act; (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species; and (3) the prohibitions found in section 9 of the Act. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of those planning efforts calls for a different outcome.

**Prudency Determination**

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the Secretary may, but is not required to, determine that a designation would not be prudent in the following circumstances:

(i) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

(ii) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

(iii) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States;

(iv) No areas meet the definition of critical habitat; or

(v) The Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available.

As discussed earlier in this document, there is currently no imminent threat of collection or vandalism identified under Factor B for this species, and identification and mapping of critical habitat is not expected to initiate any such threat. In our SSA report and proposed listing determination for the Ocmulgee skullcap, we determined that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to Ocmulgee skullcap and that those threats in some way can be addressed by section 7(a)(2) consultation measures. The species occurs wholly in the jurisdiction of the United States, and we are able to identify areas that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) have been met and because the Secretary has not identified other circumstances for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat is prudent for the Ocmulgee skullcap.

**Critical Habitat Determinability**

Having determined that designation is prudent, under section 4(a)(3) of the Act we must find whether critical habitat for the Ocmulgee skullcap is determinable. Our

regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

(i) Data sufficient to perform required analyses are lacking, or

(ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of "critical habitat."

When critical habitat is not determinable, the Act allows the Service an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)).

We reviewed the available information pertaining to the biological needs of the species and habitat characteristics where this species is located. This and other information represent the best scientific data available and led us to conclude that the designation of critical habitat is determinable for the Ocmulgee skullcap.

**Physical or Biological Features Essential to the Conservation of the Species**

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas we will designate as critical habitat from within the geographical area occupied by the species at the time of listing, we consider the physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection. The regulations at 50 CFR 424.02 define "physical or biological features essential to the conservation of the species" as the features that occur in specific areas and that are essential to support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity. For example, physical features essential to the conservation of the species might include

gravel of a particular size required for spawning, alkaline soil for seed germination, protective cover for migration, or susceptibility to flooding or fire that maintains necessary early-successional habitat characteristics. Biological features might include prey species, forage grasses, specific kinds or ages of trees for roosting or nesting, symbiotic fungi, or a particular level of nonnative species consistent with conservation needs of the listed species. The features may also be combinations of habitat characteristics and may encompass the relationship between characteristics or the necessary amount of a characteristic essential to support the life history of the species.

In considering whether features are essential to the conservation of the species, the Service may consider an appropriate quality, quantity, and spatial and temporal arrangement of habitat characteristics in the context of the life-history needs, condition, and status of the species. These characteristics include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing (or development) of offspring; and habitats that are protected from disturbance.

Our SSA report for the Ocmulgee skullcap provides the scientific information upon which this proposed critical habitat designation is based (Service 2020, entire). A thorough account of the ecological needs of the Ocmulgee skullcap can be found in the SSA report (Service 2020, chapter 2, pp. 4–11), and is briefly summarized here in the context of the physical or biological features that are essential to the conservation of the species.

*Habitat*: As described in the **Background** section, Ocmulgee skullcap occurs in moist, calcareous hardwood forests on north to northeast facing slopes of river bluffs and their floodplains in the Ocmulgee and Savannah River watersheds in Georgia and South Carolina. River bluffs and steep slopes are subject to localized disturbances that limit the

accumulation of leaf litter and competition. Ocmulgee skullcap individuals require reduced competition to grow and reproduce within suitable habitat.

These hardwood forests are characterized by a mature, mixed-level canopy with spatial heterogeneity that provides mottled shade required by Ocmulgee skullcap. The herbaceous layer in this forest type includes a rich diversity of grasses and forbs. These grasses and forbs in the herbaceous layer of an intact forest support the required pollinators for the species in adequate numbers to facilitate Ocmulgee skullcap reproduction. The upper canopy of mixed hardwoods in a forest with suitable habitat provides the partial shade required for germination, growth, and reproduction. Intact calcareous forests are characterized by a diverse species composition ranging from short-lived pioneer species to long-lived shade tolerant species (Edwards et al. 2013, p. 406). Communal species in these areas may consist of red buckeye (*Aesculus pavia*), Eastern redbud (*Cercis canadensis*), white oak (*Quercus alba*), basswood (*Tilia americana*), American holly (*Ilex opaca*), and relict trillium (*Trillium reliquum*) (Edwards et al. 2013, p. 409; Bradley 2019, pp. 21–28).

Intact forested habitat with a mature canopy and discrete disturbances provides an important buffer of suitable habitat for Ocmulgee skullcap populations to decrease encroachment of competing nonnative invasive plants. Competition with other native species and nonnative invasive species can restrict seedlings, vegetative plants, and flowering plants from obtaining the three key resources (water, sunlight, and soil) needed to grow and reproduce; therefore, healthy Ocmulgee skullcap individuals and populations need reduced competition.

*Soils*: The calcareous hardwood forests where Ocmulgee skullcap occurs are influenced by outcroppings of limestone or marl (i.e., calcium rich parent material for soils). Ocmulgee skullcap requires well-drained soils or shallow, calcium rich soils that

are buffered or circumneutral (pH between 6.5 and 7.5) to germinate. These soils occur within regions underlain or otherwise influenced by limestone or marl.

More detail on the habitat and life history needs are summarized above under Background, and a thorough review is available in the SSA report (Service 2020, entire; available on *https://www.regulations.gov* under Docket No. FWS-R4-ES-2021-0059).

A summary of the resource needs of the Ocmulgee skullcap is provided below in Table 4.

Table 4. Ocmulgee skullcap individual resources needs by life stage. H = Habitat, N = Nutrition, R = Reproduction. Key resource needs are in bolded text and include precipitation (water), partial sunlight, soil, and reduced competition (Collins 1976; Chafin 2008).

| **Life stage** | **Resource and/or circumstances needed for individuals to complete life stage** | **Resource function (HNR)** |
|---|---|---|
| Seed | Fall/winter **precipitation** | N |
| | **Bare mineral calcium-rich soil** | H, N, R |
| | Partial **sunlight** | N |
| Seedling | Sufficient summer/fall **precipitation** | N |
| | **Calcium-rich soil** | H, N |
| | **Reduced competition** from invasives/encroaching plants | H |
| | Partial **sunlight** for photosynthesis | N |
| Vegetative plant | Spring/summer **precipitation** | N |
| | **Calcium-rich soil** | H, N |
| | **Reduced competition** from invasives/encroaching plants | H |
| | Partial **sunlight** for photosynthesis | N |
| Flowering plant | Spring/summer **precipitation** | N |
| | **Calcium-rich soil** | H, N |
| | **Reduced competition** from invasives/encroaching plants | H |
| | **Pollinators** required | R |
| | Partial **sunlight** for photosynthesis | N |

*Summary of Essential Physical or Biological Features*

We derive the specific physical or biological features essential to the conservation of Ocmulgee skullcap from studies of the species' habitat, ecology, and life history as described below. Additional information can be found in the SSA report (Service 2020, entire; available on *https://www.regulations.gov* under Docket No. FWS-R4-ES-2021-0059). We have determined that the following physical or biological features are essential to the conservation of Ocmulgee skullcap:

(1) River bluffs with steep and/or shallow soils that are subject to localized disturbances that limit the accumulation of leaf litter and competition within the Upper Gulf Coastal Plain and Piedmont of Georgia.

(2) Well-drained soils that are buffered or circumneutral (pH between 6.5 and 7.5) generally within regions underlain or otherwise influenced by limestone or marl (mixed carbonate-clay rock).

(3) A mature, mixed-level canopy with spatial heterogeneity, providing mottled shade and often including a rich diversity of grasses and forbs characterizing the herb layer.

(4) Intact forested habitat that is fully functional (i.e., with mature canopy and discrete disturbances) and buffered by surrounding habitat to impede the invasion of competitors.

**Special Management Considerations or Protection**

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the conservation of the species and which may require special management considerations or protection. The features essential to the conservation of Ocmulgee skullcap may require special management considerations or protection to reduce the following threats: development, nonnative invasive species (plants), and herbivory by white-tailed deer.

Special management considerations or protection are required within critical habitat areas to address these threats. Management activities that could ameliorate these threats include, but are not limited to, review of proposed County and State projects and other development projects for effects to Ocmulgee skullcap and its habitat and avoidance of impacts to the species, control and reduction of nonnative invasive species, harvest of deer to reduce herbivory in affected populations, and habitat restoration projects. These management activities would protect the physical or biological features for the species by promoting intact vegetative community with mixed heterogeneity, mottled shade, and a diverse herbaceous layer.

**Criteria Used To Identify Critical Habitat**

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. In accordance with the Act and our implementing regulations at 50 CFR 424.12(b), we review available information pertaining to the habitat requirements of the species and identify specific areas within the geographical area occupied by the species at the time of listing and any specific areas outside the geographical area occupied by the species to be considered for designation as critical habitat. To determine and select appropriate occupied areas that contain the physical or biological features essential to the conservation of the species or areas otherwise essential for the conservation of the Ocmulgee skullcap, we developed a conservation strategy for the species. The goal of the conservation strategy for the Ocmulgee skullcap is to recover the species to the point where the protections of the Act are no longer necessary. The role of critical habitat in achieving this conservation goal is to identify the specific areas within the species' range that provide essential physical or biological features, without which range-wide resiliency, redundancy, and representation could not be achieved. We anticipate that recovery will require continued protection of existing populations and habitats that contribute to the viability of the species, as well as ensuring there are

adequate numbers of individual plants in populations and that there are multiple sufficiently resilient populations in each representative unit and across the current range of the species. This approach will help to ensure that catastrophic events cannot simultaneously affect all known populations of the Ocmulgee skullcap as well as lead to connectivity among populations. Recovery considerations, such as striving for representation of both watersheds in the species' current range, were considered in formulating this proposal.

Current extant populations, with the exception of one large area, are confined to small patches (ranging in size from 0.24 to 24 ac (0.1 to 9.7 ha)). We defined current extant populations as those with occurrences since 1999. Most populations have occurrence data from 2007–2019, but we included element occurrence data from the 1999 comprehensive species survey in for those few sites that have not been revisited but contain suitable habitat with the physical or biological features essential to the conservation of the species. The areas surrounding these patches contain similar habitat, with the physical or biological features essential to the conservation of the species, although occurrences have not been recorded, and in some instances, no surveys conducted there. Ocmulgee skullcap requires areas of intact hardwood forest to provide the appropriate canopy conditions in large enough areas to buffer the species from encroachment of nonnative invasive species. The small patches do not, by themselves, provide enough habitat to support the species or provide connectivity among populations. In addition, the small populations in these patches experience the exacerbation of other threats associated with small population size (see *Influences on Ocmulgee Skullcap Viability*). Based on the Act's implementing regulations (50 CFR 424.12 (d)), when habitats are in close proximity to one another, an inclusive area may be designated. We delineated populations of Ocmulgee skullcap using a 2 km (1.24 mi) radius circle, with overlapping buffers determined to be within the same population based on the need for

sufficient space and resources for required pollinators (NatureServe 2020, entire; Service 2020, p. 21). Therefore, the habitat areas surrounding Ocmulgee skullcap occurrences are also included within these proposed occupied units, because they have the physical or biological features essential to the conservation of the species, provide space for population expansion that would increase the resiliency within these units, provide connectivity between individual patches of occupied habitat, and support the conditions the Ocmulgee skullcap individuals and populations require. The SSA report contains the best available information used to identify critical habitat for the Ocmulgee skullcap, which includes existing monitoring data, population status surveys, and relevant Geographic Information Systems (GIS) layers (Service 2020, pp. 26, 36–39, Appendix A).

In summary, for areas within the geographic area occupied by the species at the time of listing, we delineated critical habitat unit boundaries using the following criteria: areas that are considered to be occupied at the time of listing within the historical range of the species, and that contain physical or biological features to support life-history functions that are essential for the conservation of the species. For the purposes of the proposed critical habitat designation, and for areas within the geographic area occupied by the species at the time of listing, we determined a unit to be occupied if it contains a recent observation (i.e., observed since 1999). These areas are consistent with the identified populations in the SSA report that were derived using occurrence data and a 2-km separation distance for sufficient space and resources for required pollinators (NatureServe 2020, entire; Service 2020, p. 21). Suitable habitat within the buffered occurrences was determined through GIS analyses that identified the areas with appropriate aspect, geomorphons (landform pattern), temperature, burned area, soil type, vegetation cover and landcover, using source data from the National Elevation Dataset, Landsat, WorldClim, NatureServe landcover map, and the GAP/LANDFIRE National

Terrestrial Ecosystems dataset. Information specific to calcium-rich soils was not available; therefore, we consider species occurrence to represent presence of this identified species need.

Based on this analysis, the following areas meet the criteria for areas occupied by the species at the time of listing: Columbia/Richmond, Barney Bluff, Burke North, Burke South, Prescott Lakes, Bolingbroke Rest Area, River North Bluff, Savage Branch, Robins Air Force Base, Tributary (Trib) Richland Creek, Oaky Woods North, Crooked Creek, Shellstone Creek, Oaky Woods South, Dry Creek, James Dykes Memorial, South Shellstone Creek, and Jordan Creek. These areas, known to be occupied by the species historically, include the extant populations. These areas meet our conservation strategy and provide essential physical or biological features necessary to support and increase resiliency, redundancy, and representation for the Ocmulgee skullcap, and designating critical habitat in these areas, which occur in both watersheds (representative units) and currently contribute to, or are units in which resiliency can be improved to contribute to, the species' viability, will sufficiently lead to the protection, and eventual reduction in risk of extirpation, of the species.

We are not currently proposing to designate any areas outside the geographical area occupied by the species because we have not identified any unoccupied areas that are essential for the conservation of the species. The protection of the current extant populations in both representative units would sufficiently reduce the risk of extinction, and improving the resiliency within these currently occupied units would increase viability to the point that the protections of the Act are no longer necessary. We have determined that the areas we are proposing are sufficient for the recovery of the species and align with our conservation strategy for Ocmulgee skullcap.

Sources of data for this proposed designation of critical habitat include multiple databases maintained by universities and State agencies in Georgia and South Carolina,

as well as numerous survey reports in suitable habitat throughout the species' range. Other sources of available information on habitat requirements for this species include studies conducted at occupied sites and published in peer-reviewed articles, agency reports, and data collected during monitoring efforts (Cammack and Genachte 1999, entire; Morris 1999, entire; Snow 1999 and 2001, entire; Bradley 2019, entire; Service 2020, entire). Observation and collection records were compiled and provided to us by State partners during the SSA analysis.

When determining proposed critical habitat boundaries, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features necessary for Ocmulgee skullcap. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands nor all lands covered under the Robins Air Force Base integrated natural resources management plan (INRMP), which are exempted from the proposed critical habitat designation (see *Application of Section 4(a)(3) of the Act* under **Exemptions**, below). Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

We propose to designate as critical habitat lands that we have determined are occupied at the time of listing (i.e., currently occupied) and that contain one or more of the physical or biological features that are essential to support life-history processes of the species. Units are proposed for designation based on one or more of the physical or

biological features being present to support Ocmulgee skullcap's life-history processes. All units contain all of the identified physical or biological features and support multiple life-history processes.

The proposed critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document under **Proposed Regulation Promulgation**. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on *https://www.regulations.gov* at Docket No. FWS-R4-ES-2021-0059 and on our internet site *https://www.fws.gov/office/georgia-ecological-services/library*.

**Proposed Critical Habitat Designation**

We are proposing to designate 6,577 ac (2,662 ha) in 18 units as critical habitat for Ocmulgee skullcap. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for Ocmulgee skullcap. The 18 areas we propose as critical habitat are: (1) Columbia/Richmond; (2) Barney Bluff; (3) Burke North; (4) Burke South; (5) Prescott Lakes; (6) Bolingbroke Rest Area; (7) River North Bluff; (8) Savage Branch; (9) Robins Air Force Base; (10) Trib Richland Creek; (11) Oaky Woods North; (12) Crooked Creek; (13) Shellstone Creek; (14) Oaky Woods South; (15) Dry Creek; (16) James Dykes Memorial; (17) South Shellstone Creek; and (18) Jordan Creek. All 18 proposed units are currently occupied by Ocmulgee skullcap. Table 5 shows the proposed critical habitat units and the approximate area of each unit. Approximately 76 percent of the proposed critical habitat occurs on private lands, 0.4 percent occurs on county lands, and the remaining 23 percent occurs on State owned or managed lands. No Federal lands are included in this proposed critical habitat designation.

TABLE 5. Proposed critical habitat units for Ocmulgee skullcap.
[Area estimates reflect all land within critical habitat unit boundaries.]

| Critical Habitat Unit Number and Name | Land Ownership by Type | Size of Unit in Acres (Hectares) |
|---|---|---|
| 1a: Columbia/Richmond | Richmond County; Private | 106 (43) |
| 1b: Columbia/Richmond | Private | 117 (47) |
| 1c: Columbia/Richmond | Private | 334 (135) |
| 2: Barney Bluff | Private | 415 (168) |
| 3: Burke North | Private | 526 (213) |
| 4: Burke South | State of Georgia; Private | 976 (395) |
| 5: Prescott Lakes | Private | 81 (33) |
| 6: Bolingbroke Rest Area | Private | 338 (137) |
| 7: River North Bluff | State of Georgia; Private | 115 (46) |
| 8: Savage Branch | Private | 115 (46) |
| 9: Robins Air Force Base | Private | 231 (93) |
| 10: Trib Richland Creek | State of Georgia; Private | 340 (138) |
| 11: Oaky Woods North | State of Georgia; Private | 657 (266) |
| 12: Crooked Creek | State of Georgia; Private | 205 (83) |
| 13: Shellstone Creek | State of Georgia; Private | 160 (65) |
| 14: Oaky Woods South | State of Georgia; Private | 363 (147) |
| 15: Dry Creek | State of Georgia; Private | 330 (133) |
| 16: James Dykes Memorial | State of Georgia; Private | 515 (208) |
| 17: South Shellstone Creek | State of Georgia; Private | 403 (163) |
| 18: Jordan Creek | Private | 250 (101) |
| Total | | 6,577 (2,662) |

Note: Area sizes may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for Ocmulgee skullcap, below.

*Unit 1: Columbia/Richmond*

Unit 1 consists of three subunits comprising 557 ac (225 ha) in Columbia and Richmond Counties, Georgia, and Aiken and Edgefield Counties, South Carolina. This

unit consists of land owned by Richmond County (five percent) and private landowners (95 percent), with 40 percent of Unit 1 held in a conservation easement. Unit 1 is considered occupied by Ocmulgee skullcap. All subunits are located north of Interstate 20 along the Savannah River and the state border.

Subunit 1a consists of 106 ac (43 ha) in Columbia County, Georgia. This subunit lies on the west side of the Savannah River, just north of the City of Augusta. Richmond County owns and manages 28 ac (11.3 ha) in this subunit, and the other 78 ac (31.7 ha) are privately owned. The subunit contains all of the physical or biological features essential to the conservation of the species, as described above under *Summary of Essential Physical or Biological Features*. Essential physical or biological feature (4) is degraded in this subunit which is adjacent to developed areas. Special management considerations or protection may be required in Subunit 1a to address and alleviate impacts from stressors that have led to the loss or degradation of the habitat, including urbanization and commercial development and nonnative invasive species (see **Special Management Considerations or Protection**, above). Special management considerations related to developed areas that would benefit the habitat in this subunit include, but are not limited to, review of County development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap, and control or removal of nonnative invasive species.

Subunit 1b consists of 117 ac (47 ha) in Richmond County, Georgia, on lands in private ownership. This subunit lies on the west side of the Savannah River, just north of the City of Augusta. The subunit contains all of the physical or biological features essential to the conservation of the species, as described above under *Summary of Essential Physical or Biological Features*. Essential physical or biological feature (4) is degraded in this subunit which is adjacent to developed areas. Special management considerations or protection may be required in Subunit 1b to address and alleviate

impacts from stressors that have led to the loss or degradation of the habitat, including urbanization and commercial development and nonnative invasive species (see **Special Management Considerations or Protection**, above). Special management considerations related to developed areas that would benefit the habitat in this subunit include, but are not limited to, review of County development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap, and control or removal of nonnative invasive species.

Subunit 1c consists of 334 ac (135 ha) Aiken and Edgefield Counties, South Carolina. This subunit lies on the east side of the Savannah River, just north of the City of Augusta. The Nature Conservancy owns and manages the 224 ac (90 ha) Greystone Preserve for conservation in this subunit, and the remaining 110 ac (45 ha) are in private ownership. The subunit contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Subunit 1c to alleviate impacts from stressors that have led to the loss and degradation of the habitat, including urbanization and residential and commercial development, nonnative invasive species, and herbivory by deer. Special management considerations related to encroachment of nonnative invasive species and herbivory by deer that would benefit the habitat in this subunit include, but are not limited to, removal of nonnative invasive species via prescribed burning, mechanical, or chemical treatments, restoration of forest conditions, and increased harvest/hunting or exclusion of white-tailed deer. In addition, special management considerations related to developed areas that would benefit the habitat in this subunit include, but are not limited to, review of County development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap, native vegetation restoration in right-of-way and

transmission line vegetation maintenance areas (edge effect), and removal of nonnative invasive species.

*Unit 2: Barney Bluff*

Unit 2 consists of 415 ac (168 ha) in the southeast portion of Richmond County, Georgia. This unit lies to the west of the Savannah River south of the City of Augusta on land in private ownership. Unit 2 is considered occupied by Ocmulgee skullcap. The unit contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 2 to alleviate impacts from stressors that have led to the degradation of the habitat, including urbanization and development, erosion due to logging, and herbivory by deer. Such special management or protection may include conservation efforts to reduce deer browsing through hunting/harvest or exclusion. Special management or protection to reduce erosion may also include implementation of best management practices during silviculture and logging and habitat restoration efforts. In addition, special management considerations related to developed areas that would benefit the habitat in this unit include, but are not limited to, review of County development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap.

*Unit 3: Burke North*

Unit 3 consists of 526 ac (213 ha) in the northwestern portion of Burke County, Georgia. The unit lies to the west of the Savannah River on land in private ownership. A conservation easement is in place on 9 ac (3.6 ha) of private land within the unit. Unit 3 is considered occupied by Ocmulgee skullcap. Unit 3 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 3 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including effects of silviculture and logging and herbivory by deer. Such special management or protection may include conservation efforts to reduce deer browsing through hunting/harvest or exclusion. Special management or protection may also include implementation of best management practices in silviculture and logging activities and habitat restoration efforts.

*Unit 4: Burke South*

Unit 4 consists of 976 ac (395 ha) in the western portion of Burke County, Georgia. This unit lies west of the Savannah River on lands owned by the Georgia Department of Natural Resources (199 ac (80 ha) on the Yuchi Wildlife Management Area), and on lands in private ownership (777 ac (314 ha)). Unit 4 is considered occupied by Ocmulgee skullcap. Unit 4 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 4 to alleviate impacts from stressors that have led to the degradation of the habitat, including urbanization and development and herbivory by deer. In some cases, these threats are being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments, and to reduce deer browsing through hunting/harvest or exclusion. In addition, special management considerations related to developed areas that would benefit the habitat in this unit include, but are not limited to, review of County development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap. Special management or protection may also include habitat restoration efforts.

*Unit 5: Prescott Lakes*

Unit 5 consists of 81 ac (33 ha) in the northern portion of Screven County, Georgia. This unit is adjacent to the main stem of the Savannah River and lies on lands in private ownership. Unit 5 is considered occupied Ocmulgee skullcap. Unit 5 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 5 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including land conversion to agriculture and herbivory by deer. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments, and to reduce deer browsing through hunting/harvest or exclusion. Special management or protection may also include habitat restoration efforts.

*Unit 6: Bolingbroke Rest Area*

Unit 6 consists of 338 ac (137 ha) in southern Monroe County, Georgia. This unit falls on lands in private ownership adjacent to the main stem of the Ocmulgee River, north of the city of Macon. Unit 6 is considered occupied by Ocmulgee skullcap. Unit 6 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 6 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including commercial development, silviculture and logging, road maintenance, and herbivory by deer. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments, and to reduce deer browsing through hunting/harvest or exclusion. Special management or protection may also include implementation of best management practices in silviculture and logging activities and habitat restoration efforts.

In addition, special management considerations related to developed areas that would benefit the habitat in this unit include, but are not limited to review of development plans and other projects considering land use changes.

*Unit 7: River North Bluff*

Unit 7 consists of 115 ac (46 ha) in the northern corner of Bibb County, Georgia. This unit is adjacent to the Ocmulgee River, north of the city of Macon. This unit contains land owned by the Georgia Department of Natural Resources (10 ac (4 ha) on the Echeconnee Wildlife Management Area), and lands in private ownership (105 ac (42 ha). This unit is adjacent to the main stem of the Ocmulgee River, north of the city of Macon. Unit 7 is considered occupied by Ocmulgee skullcap. Unit 7 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 7 to alleviate impacts from stressors that have led to the degradation of the habitat, including competition and encroachment by nonnative invasive species. In some cases, these threats are being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments. Special management or protection may also include habitat restoration efforts.

*Unit 8: Savage Branch*

Unit 8 consists of 115 ac (46 ha) in the northern portion of Bibb County, Georgia. This unit is adjacent to the main stem of the Ocmulgee River, north of the city of Macon, and falls on lands in private ownership. Unit 8 is considered occupied by Ocmulgee skullcap. Unit 8 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 8 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including urbanization and development and nonnative invasive species. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments. In addition, special management considerations related to developed areas that would benefit the habitat in this unit include, but are not limited to, review of County development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap. Special management or protection may also include habitat restoration efforts.

*Unit 9: Robins Air Force Base*

Unit 9 consists of 455 ac (184 ha) in western Houston County, Georgia. This unit is adjacent to the main stem of the Ocmulgee River. This unit contains 231 ac (93 ha) in private ownership and 224 ac (91 ha) of Department of Defense (DoD)-owned lands that are covered under the Robins Air Force Base INRMP, which are exempted from proposed critical habitat designation (see *Application of Section 4(a)(3) of the Act* under **Exemptions**, below), and, therefore, the total area proposed for designation is 231 ac (93 ha). Unit 9 is considered occupied by Ocmulgee skullcap. Unit 9 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 9 to alleviate impacts from stressors that have led to the degradation of the habitat, including urbanization and development and nonnative invasive species. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments. In addition, special management considerations related to developed areas that would benefit the habitat in this unit include, but are not limited to, review of County

development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap. Special management or protection may also include habitat restoration efforts.

*Unit 10: Trib Richland Creek*

Unit 10 consists of 340 ac (138 ha) in eastern Twiggs County, Georgia. This unit lies east of Robins Air Force Base and along a tributary of the Ocmulgee River. The unit falls on lands leased by the Georgia Department of Natural Resources (242 ac (98 ha) on the Ocmulgee Wildlife Management Area), and lands in private ownership (98 acres (40 ha)). Unit 10 is considered occupied by Ocmulgee skullcap. Unit 10 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 10 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including land conversion to agriculture and herbivory by deer. In some cases, these threats are being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include conservation efforts to reduce deer browsing through hunting/harvest or exclusion. Special management or protection related to land conversion may also include consideration of Ocmulgee skullcap in agriculture conversion plans and habitat restoration efforts in affected field/forest edges.

*Unit 11: Oaky Woods North*

Unit 11 consists of 657 ac (266 ha) in western Houston County, Georgia. This unit lies adjacent to the county line, along a tributary of the Ocmulgee River. The unit falls on lands owned by the Georgia Department of Natural Resources (228 ac (92 ha) on the Oaky Woods Wildlife Management Area) and lands in private ownership (429 acres (174 ha)). Unit 11 is considered occupied by Ocmulgee skullcap. Unit 11 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 11 to alleviate impacts from stressors that have led to the degradation of the habitat, including limited effects of nonnative invasive species and herbivory by deer. In some cases, these threats are being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments, and to reduce deer browsing through hunting/harvest or exclusion. Special management or protection may also include habitat restoration efforts.

*Unit 12: Crooked Creek*

Unit 12 consists of 205 ac (83 ha) in southeastern Twiggs County, Georgia. This unit is located south of Highway 96, and along a tributary of the Ocmulgee River. The unit falls on lands leased by the Georgia Department of Natural Resources (201 ac (81 ha) on the Ocmulgee Wildlife Management Area) and on lands in private ownership (4 ac (1.6 ha)). Unit 12 is considered occupied by Ocmulgee skullcap. Unit 12 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 12 to alleviate impacts from stressors that have led to the degradation of the habitat, including nonnative invasive species and herbivory by deer. In some cases, these threats are being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include continued conservation efforts to reduce deer browsing through hunting/harvest or exclusion. Special management or protection may also include habitat restoration efforts.

*Unit 13: Shellstone Creek*

Unit 13 consists of 160 ac (65 ha) in southeastern Twiggs County, Georgia. This unit lies east of Unit 12, along a tributary of the Ocmulgee River. The unit falls on lands

leased by the Georgia Department of Natural Resources (15 ac (6 ha) on the Ocmulgee Wildlife Management Area) and on lands in private ownership (145 ac (59 ha)). Unit 13 is considered occupied by Ocmulgee skullcap. Unit 13 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 13 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including forest conversion to agriculture, residential development, nonnative invasive species, and herbivory by deer. In some cases, these threats are being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments, and to reduce deer browsing through hunting/harvest or exclusion. Special management or protection related to land conversion may also include consideration of Ocmulgee skullcap in agriculture conversion plans and habitat restoration efforts in affected field/forest edges. Special management or protection may also include habitat restoration efforts.

*Unit 14: Oaky Woods South*

Unit 14 consists of 363 ac (145 ha) in western Houston County, Georgia. This unit is west of units 15 and 16, and along a tributary of the Ocmulgee River. This unit falls on lands leased by the Georgia Department of Natural Resources (84 ac (34 ha) on the Oaky Woods Wildlife Management Area), and on lands in private ownership (279 ac (113 ha)). Unit 14 is considered occupied by Ocmulgee skullcap. Unit 14 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 14 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including urbanization and commercial development. In some cases, these threats are

being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include considerations related to developed areas that would benefit the habitat in this unit include, but are not limited to, review of County development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap. Special management or protection may also include habitat restoration efforts.

*Unit 15: Dry Creek*

Unit 15 consists of 330 ac (133 ha) in western Houston and northern Pulaski counties, Georgia. This unit is adjacent to the county line, and along a tributary of the Ocmulgee River. This unit falls on lands leased by the Georgia Department of Natural Resources (50 ac (20 ha) on the Ocmulgee Wildlife Management Area), and lands in private ownership (280 ac (113 ha)). Unit 15 is considered occupied by Ocmulgee skullcap. Unit 15 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 15 to alleviate impacts from stressors that have led to the degradation of the habitat, including nonnative invasive species and herbivory by deer. In some cases, these threats are being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments, and to reduce deer browsing through hunting/harvest or exclusion. Special management or protection may also include habitat restoration efforts.

*Unit 16: James Dykes Memorial*

Unit 16 consists of 515 ac (208 ha) in eastern Bleckley County and northern Pulaski County, Georgia. This unit is adjacent to the main stem of the Ocmulgee River, west of the City of Cochran. This unit falls on lands owned by the Georgia Department of

Natural Resources (497 ac (201 ha) on the Ocmulgee Wildlife Management Area), and on lands in private ownership (18 ac (7 ha)). Unit 16 is considered occupied by Ocmulgee skullcap. Unit 16 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 16 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including land conversion to agriculture, nonnative invasive species, and herbivory by deer. In some cases, these threats are being addressed or coordinated with our partners and landowners to implement needed actions. Such special management or protection may include conservation efforts to reduce or control nonnative invasive plants via prescribed burning, mechanical, or chemical treatments and to reduce deer browsing through hunting/harvest or exclusion. Special management or protection related to land conversion may also include consideration of Ocmulgee skullcap in agriculture conversion plans and habitat restoration efforts in affected field/forest edges. Special management or protection may also include habitat restoration efforts.

*Unit 17: South Shellstone Creek*

Unit 17 consists of 403 ac (163 ha) in eastern Bleckley County, Georgia. This unit is adjacent to a tributary of the Ocmulgee River, north of the City of Cochran. This unit falls on lands owned by the Georgia Department of Natural Resources (4 ac (1.6 ha), and on lands in private ownership (399 ac (161 ha)). Unit 17 is considered occupied by Ocmulgee skullcap. Unit 17 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 17 to alleviate impacts from stressors that have led to the loss or degradation of the habitat, including land conversion to agriculture and other nonnative habitat. In some cases, these threats are being addressed or coordinated with our partners and landowners to

implement needed actions. Special management or protection related to land conversion may also include consideration of Ocmulgee skullcap in agriculture conversion plans and habitat restoration efforts in affected field/forest edges. Special management or protection may also include habitat restoration efforts.

*Unit 18: Jordan Creek*

Unit 18 consists of 250 ac (101 ha) in northern Pulaski County, Georgia. This unit is adjacent to a tributary of the Ocmulgee River, north of the City of Hawkinsville. The unit falls on lands in private ownership. Unit 18 is considered occupied by Ocmulgee skullcap. Unit 18 contains all of the physical or biological features essential to the conservation of the species.

Special management considerations or protection may be required within Unit 18 to alleviate impacts from stressors that have led to the degradation of the habitat, including limited urbanization and development. In addition, special management considerations related to developed areas that would benefit the habitat in this unit include, but are not limited to, review of County development plans and other projects considering land use changes with recommendations to avoid areas occupied by Ocmulgee skullcap. Special management or protection may also include habitat restoration efforts.

**Effects of Critical Habitat Designation**

*Section 7 Consultation*

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action which is likely to jeopardize the continued existence of any species

proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

We published a final rule revising the definition of destruction or adverse modification on August 27, 2019 (84 FR 44976). Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq*.) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency—do not require section 7 consultation.

Compliance with the requirements of section 7(a)(2) is documented through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are

identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define "reasonable and prudent alternatives" (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Service Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 set forth requirements for Federal agencies to reinitiate formal consultation on previously reviewed actions. These requirements apply when the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law) and, subsequent to the previous consultation: (1) if the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action.

In such situations, Federal agencies sometimes may need to request reinitiation of consultation with us, but the regulations also specify some exceptions to the requirement to reinitiate consultation on specific land management plans after subsequently listing a new species or designating new critical habitat. See the regulations for a description of those exceptions.

*Application of the "Destruction or Adverse Modification" Standard*

The key factor related to the destruction or adverse modification determination is whether implementation of the proposed Federal action directly or indirectly alters the designated critical habitat in a way that appreciably diminishes the value of the critical habitat as a whole for the conservation of the listed species. As discussed above, the role of critical habitat is to support physical or biological features essential to the conservation of a listed species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may violate section 7(a)(2) of the Act by destroying or adversely modifying such habitat, or that may be affected by such designation.

Activities that the Service may, during a consultation under section 7(a)(2) of the Act, find are likely to destroy or adversely modify critical habitat include, but are not limited to:

(1) Actions that would alter native vegetation structure or composition within the hardwood forest habitat and diminish the availability of shade or partial shade. Such activities could include, but are not limited to, land conversion or clearing related to residential, commercial, agricultural or recreational development, including associated infrastructure, logging or removal of overstory and midstory trees in the forest canopy, or introduction of nonnative plant species. These activities could lead to loss, modification,

or fragmentation of the forest habitat and required canopy cover, thereby eliminating or reducing the habitat necessary for the growth and reproduction of the species.

(2) Actions that would alter the pH of the soil. Such activities could include, but are not limited to, timber harvest activities, particularly burning as site preparation or slash pile disposal, oil and gas development and mining. These activities could result in significant ground disturbance that could alter the chemical and physical properties of the soil.

(3) Actions that would decrease the diversity and abundance of floral resources and pollinators. Such activities could include, but are not limited to, the use of pesticides and herbicides, livestock grazing, and conversion of habitat to agricultural or silvicultural land use. These activities could lead to direct mortality of pollinators and diminish the floral resources available to pollinators.

**Exemptions**

*Application of Section 4(a)(3) of the Act*

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an INRMP by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide for these ecological needs; and

(4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that: "The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation."

We consult with the military on the development and implementation of INRMPs for installations with listed species. We analyzed INRMPs developed by military installations located within the range of the proposed critical habitat designation for Ocmulgee skullcap to determine if they meet the criteria for exemption from critical habitat under section 4(a)(3) of the Act. The following areas are Department of Defense (DoD) lands with completed, Service-approved INRMPs within the proposed critical habitat designation.

*Approved INRMP*

Robins Air Force Base, 224 ac (91 ha)

Robins Air Force Base (AFB) has an approved INRMP. The U.S. Air Force is committed to working closely with the Service, and the Georgia Department of Natural Resources to continually refine the existing INRMP as part of the Sike's Act INRMP review process.

Robins AFB completed an INRMP in 2017, which serves as the principal management plan governing all natural resource activities on the installation (Robins AFB INRMP 2017, entire). The 2017 INRMP includes benefits for Ocmulgee skullcap through: (1) control or elimination of competing, nonnative vegetation (mowing or hand clearing during winter months when Ocmulgee skullcap is dormant); (2) limiting recreational and other activities that may impact the species near Ocmulgee skullcap locations; and, (3) promoting natural regeneration of the dominant plant species in upland hardwood bluff forest communities. Further, Robins AFB environmental staff review projects and enforce existing regulations and orders that, through their implementation, avoid and minimize impacts to natural resources, including Ocmulgee skullcap and its habitat. In addition, Robins AFB INRMP provides protection to forested habitat for Ocmulgee skullcap by implementing forest management activities, designating stream and wetland protection zones, and engaging in public outreach and education. Robins AFB INRMP specifies periodic monitoring of the distribution and abundance of the Ocmulgee skullcap populations on the base.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the Robins AFB INRMP and that conservation efforts identified in the INRMP will provide a benefit to Ocmulgee skullcap. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3)(B) of the Act. We are not including approximately 224 ac (91 ha) of forested habitat on Robins AFB in this proposed critical habitat designation because of this exemption.

**Consideration of Impacts under Section 4(b)(2) of the Act**

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant

impact of specifying any particular area as critical habitat. The Secretary may exclude an area from designated critical habitat based on economic impacts, impacts on national security, or any other relevant impacts. In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise discretion to exclude the area only if such exclusion would not result in the extinction of the species. In making the determination to exclude a particular area, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor. We describe below the process that we undertook for taking into consideration each category of impacts and our analyses of the relevant impacts.

*Consideration of Economic Impacts*

Section 4(b)(2) of the Act and its implementing regulations require that we consider the economic impact that may result from a designation of critical habitat. To assess the probable economic impacts of a designation, we must first evaluate specific land uses or activities and projects that may occur in the area of the critical habitat. We then must evaluate the impacts that a specific critical habitat designation may have on restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the areas proposed. We then identify which conservation efforts may be the result of the species being listed under the Act versus those attributed solely to the designation of critical habitat for this particular species. The probable economic impact of a proposed critical habitat designation is analyzed by comparing scenarios both “with critical habitat” and “without critical habitat.”

The “without critical habitat” scenario represents the baseline for the analysis,

which includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat (e.g., under the Federal listing as well as other Federal, State, and local regulations). Therefore, the baseline represents the costs of all efforts attributable to the listing of the species under the Act (i.e., conservation of the species and its habitat incurred regardless of whether critical habitat is designated). The "with critical habitat" scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts would not be expected without the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat, above and beyond the baseline costs. These are the costs we use when evaluating the benefits of inclusion and exclusion of particular areas from the final designation of critical habitat should we choose to conduct a discretionary 4(b)(2) exclusion analysis.

For this particular designation, we developed an incremental effects memorandum (IEM) considering the probable incremental economic impacts that may result from this proposed designation of critical habitat. The information contained in our IEM was then used to develop a screening analysis of the probable effects of the designation of critical habitat for the Ocmulgee skullcap (Industrial Economics, Inc. 2020). We began by conducting a screening analysis of the proposed designation of critical habitat in order to focus our analysis on the key factors that are likely to result in incremental economic impacts. The purpose of the screening analysis is to filter out particular geographic areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur incremental economic impacts. In particular, the screening analysis considers baseline costs (i.e., absent critical habitat designation) and includes any probable incremental economic impacts where land and water use may already be subject to

conservation plans, land management plans, best management practices, or regulations that protect the habitat area as a result of the Federal listing status of the species. Ultimately, the screening analysis allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a result of the designation. If the proposed critical habitat designation contains any unoccupied units, the screening analysis assesses whether those units require additional management or conservation efforts that may incur incremental economic impacts. This screening analysis, combined with the information contained in our IEM, constitute what we consider to be our draft economic analysis (DEA) of the proposed critical habitat designation for the Ocmulgee skullcap; our DEA is summarized in the narrative below.

Executive Orders (E.O.s) 12866 and 13563 direct Federal agencies to assess the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the E.O. regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly affected entities, where practicable and reasonable. If sufficient data are available, we assess, to the extent practicable, the probable impacts to both directly and indirectly affected entities. As part of our screening analysis, we considered the types of economic activities that are likely to occur within the areas likely affected by the critical habitat designation. In our evaluation of the probable incremental economic impacts that may result from the proposed designation of critical habitat for the Ocmulgee skullcap, first we identified, in the IEM dated February 12, 2021, probable incremental economic impacts associated with the following categories of activities: (1) roadway and bridge maintenance, repair, and construction; (2) agriculture; (3) recreation; (4) commercial or residential development; and (5) State lands management (Georgia Department of Natural Resources Wildlife Management Areas). We considered each industry or category individually. Additionally, we considered whether their activities have any

Federal involvement. Critical habitat designation generally will not affect activities that do not have any Federal involvement; under the Act, designation of critical habitat only affects activities conducted, funded, permitted, or authorized by Federal agencies. If we list the species, in areas where the Ocmulgee skullcap is present, Federal agencies would be required to consult with the Service under section 7 of the Act on activities they fund, permit, or implement that may affect the species. If, when we list the species, we also finalize this proposed critical habitat designation, our consultations would include an evaluation of measures to avoid the destruction or adverse modification of critical habitat.

In our IEM, we attempted to clarify the distinction between the effects that would result from the species being listed and those attributable to the critical habitat designation (i.e., difference between the jeopardy and adverse modification standards) for the Ocmulgee skullcap's critical habitat. Because the designation of critical habitat for Ocmulgee skullcap was proposed concurrently with the listing, it has been our experience that it is more difficult to discern which conservation efforts are attributable to the species being listed and those which will result solely from the designation of critical habitat. However, the following specific circumstances in this case help to inform our evaluation: (1) The essential physical or biological features identified for critical habitat are the same features essential for the life requisites of the species, and (2) any actions that would result in sufficient harm or harassment to constitute jeopardy to the Ocmulgee skullcap would also likely adversely affect the essential physical or biological features of critical habitat. The IEM outlines our rationale concerning this limited distinction between baseline conservation efforts and incremental impacts of the designation of critical habitat for this species. This evaluation of the incremental effects has been used as the basis to evaluate the probable incremental economic impacts of this proposed designation of critical habitat.

The proposed critical habitat designation for the Ocmulgee skullcap totals approximately 6,577 ac (2,662 ha) in 10 Georgia counties and 2 South Carolina counties. We have divided the proposed critical habitat into 18 units, with 1 unit divided into 3 subunits. All eighteen units are considered occupied because they contain current (1999–2020) occurrences of Ocmulgee skullcap. We are not proposing to designate any units of unoccupied habitat. Approximately 15 percent of the proposed designation is located on State-owned lands and 9 percent of the proposed designation is located on State owned or managed lands (leased lands in private ownership). Eighty-five percent of proposed lands are privately owned (includes the nine percent with State management) and no Federal lands are included in the proposed designation. Actions that may affect the species or its habitat would also affect designated critical habitat, and it is unlikely that any additional conservation efforts would be recommended to address the adverse modification standard over and above those recommended as necessary to avoid jeopardizing the continued existence of the Ocmulgee skullcap. Therefore, the potential incremental economic effects of the critical habitat designation are expected to be limited to administrative costs and minor costs of conservation efforts. Administrative costs include the additional effort from the Service and the Federal action agency to consider critical habitat for Ocmulgee skullcap in a section 7 consultation that already considers the presence of Ocmulgee skullcap.

The entities most likely to incur incremental costs are parties to section 7 consultations, including Federal action agencies and, in some cases, third parties, most frequently State agencies or municipalities. Activities we expect would be subject to consultations that may involve private entities as third parties are residential and commercial development that may occur on private lands. Our analysis of economic impacts makes the following assumptions about consultation activity, most of which are more than likely to overstate than understate potential impacts due to the history of

biological assessments and implementation of project conservation measures by the Federal action agencies. The analysis assumes that approximately 73 section 7 consultations (approximately one formal consultation, two informal consultations, and 70 technical assistance efforts including species lists) will occur annually in the proposed critical habitat areas, based on the previous consultation history in the area. The annual costs to the Service and other action agencies are estimated at approximately $39,700. Units 1, 3, 4, and 7 are projected to have the highest number of consultations with six or more per unit.

The probable incremental economic impacts of the Ocmulgee skullcap proposed critical habitat designation are expected to be limited to additional administrative effort and minor costs of conservation efforts resulting from a small number of future section 7 consultations (Industrial Economics, Inc. 2020). This is due to two factors: (1) All proposed critical habitat areas are considered to be occupied by the species, and incremental economic impacts of critical habitat designation, other than administrative costs and minor costs of conservation efforts, are unlikely; and (2) few actions are anticipated that would result in section 7 consultation or associated project modifications. At approximately $10,000 per formal programmatic consultation, the burden resulting from the designation of critical habitat for Ocmulgee skullcap, based on the anticipated annual number of consultations and associated consultation costs, is not expected to exceed $39,700 in most years (Industrial Economics, Inc. 2020). The designation is unlikely to trigger additional requirements under State or local regulations. Thus, the annual administrative burden is relatively low.

In our DEA, we did not identify any ongoing or future actions that would warrant additional recommendations or project modifications to avoid adversely modifying critical habitat above those we would recommend for avoiding jeopardy to the species, and we anticipate minimal change in management at Georgia Department of

Natural Resource wildlife management areas due to the designation of critical habitat for Ocmulgee skullcap.

We are soliciting data and comments from the public on the DEA discussed above, as well as all aspects of this proposed rule and our required determinations. During the development of a final designation, we will consider the information presented in the DEA and any additional information on economic impacts we receive during the public comment period to determine whether any specific areas should be excluded from the final critical habitat designation under authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90. If we receive credible information regarding the existence of a meaningful economic or other relevant impact supporting a benefit of exclusion, we will conduct an exclusion analysis for the relevant area or areas. We may also exercise the discretion to evaluate any other particular areas for possible exclusion. Furthermore, when we conduct an exclusion analysis based on impacts identified by experts in, or sources with firsthand knowledge about, impacts that are outside the scope of the Service's expertise, we will give weight to those impacts consistent with the expert or firsthand information unless we have rebutting information. We may exclude an area from critical habitat if we determine that the benefits of excluding the area outweigh the benefits of including the area, provided the exclusion will not result in the extinction of this species.

*Consideration of National Security Impacts*

Section 4(a)(3)(B)(i) of the Act may not cover all DoD lands or areas that pose potential national-security concerns (e.g., a DoD installation that is in the process of revising its INRMP for a newly listed species or a species previously not covered). If a particular area is not covered under section 4(a)(3)(B)(i), then national-security or homeland-security concerns are not a factor in the process of determining what areas meet the definition of "critical habitat." However, the Service must still consider impacts

on national security, including homeland security, on those lands or areas not covered by section 4(a)(3)(B)(i), because section 4(b)(2) requires the Service to consider those impacts whenever it designates critical habitat. Accordingly, if DoD, Department of Homeland Security (DHS), or another Federal agency has requested exclusion based on an assertion of national-security or homeland-security concerns, or we have otherwise identified national-security or homeland-security impacts from designating particular areas as critical habitat, we generally have reason to consider excluding those areas.

However, we cannot automatically exclude requested areas. When DoD, DHS, or another Federal agency requests exclusion from critical habitat on the basis of national-security or homeland-security impacts, we must conduct an exclusion analysis if the Federal requester provides credible information, including a reasonably specific justification of an incremental impact on national security that would result from the designation of that specific area as critical habitat. That justification could include demonstration of probable impacts, such as impacts to ongoing border-security patrols and surveillance activities, or a delay in training or facility construction, as a result of compliance with section 7(a)(2) of the Act. If the agency requesting the exclusion does not provide us with a reasonably specific justification, we will contact the agency to recommend that it provide a specific justification or clarification of its concerns relative to the probable incremental impact that could result from the designation. If we conduct an exclusion analysis because the agency provides a reasonably specific justification or because we decide to exercise the discretion to conduct an exclusion analysis, we will defer to the expert judgment of DoD, DHS, or another Federal agency as to: (1) Whether activities on its lands or waters, or its activities on other lands or waters, have national-security or homeland-security implications; (2) the importance of those implications; and (3) the degree to which the cited implications would be adversely affected in the absence of an exclusion. In that circumstance, in conducting a discretionary section 4(b)(2)

exclusion analysis, we will give great weight to national-security and homeland-security concerns in analyzing the benefits of exclusion.

Under section 4(b)(2) of the Act, we also consider whether a national security or homeland security impact might exist on lands owned or managed by DoD or DHS. In preparing this proposal, we have determined that, other than the land exempted under section 4(a)(3)(B)(i) of the Act based upon the existence of an approved INRMP (see **Exemptions**, above), the lands within the proposed designation of critical habitat for Ocmulgee skullcap are not owned or managed by DoD or DHS. Therefore, we anticipate no impact on national security or homeland security. However, if through the public comment period we receive credible information regarding impacts on national security or homeland security from designating particular areas as critical habitat, then as part of developing the final designation of critical habitat, we will conduct a discretionary exclusion analysis to determine whether to exclude those areas under authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90.

*Consideration of Other Relevant Impacts*

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security discussed above. Other relevant impacts may include, but are not limited to, impacts to Tribes, States, local governments, public health and safety, community interests, the environment (such as increased risk of wildfire or pest and invasive species management), Federal lands, and conservation plans, agreements, or partnerships. To identify other relevant impacts that may affect the exclusion analysis, we consider a number of factors, including whether there are permitted conservation plans covering the species in the area—such as HCPs, safe harbor agreements (SHAs), or candidate conservation agreements with assurances (CCAAs)—or whether there are non-permitted conservation agreements and partnerships that may be impaired by designation of, or exclusion from, critical habitat. In addition,

we look at whether Tribal conservation plans or partnerships, Tribal resources, or government-to-government relationships of the United States with Tribal entities may be affected by the designation. We also consider any State, local, public-health, community-interest, environmental, or social impacts that might occur because of the designation.

We have not identified any areas to consider for exclusion from critical habitat based on other relevant impacts. In preparing this proposal, we have determined that there are currently no permitted conservation plans or other management plans for Ocmulgee skullcap. We are not aware of any partnerships, management, or protection afforded by cooperative management efforts that provide for the conservation of the species. We have determined that no Tribal lands fall within the boundaries of the proposed critical habitat for the Ocmulgee skullcap. There are no areas for which exclusion would result in conservation, or in the continuation, strengthening, or encouragement of partnerships.

However, during the development of a final designation, we will consider all information currently available or received during the public comment period. If we receive credible information regarding the existence of a meaningful impact supporting a benefit of excluding any areas, we will undertake an exclusion analysis and determine whether those areas should be excluded from the final critical habitat designation under the authority of section 4(b)(2) and our implementing regulations at 50 CFR 17.90. We may also exercise the discretion to undertake exclusion analyses for other areas as well, and we will describe all of our exclusion analyses as part of a final critical habitat determination.

**Summary of Exclusions Considered Under 4(b)(2) of the Act**

At this time, we are not considering any exclusions from the proposed designation based on economic impacts, national security impacts, or other relevant impacts—such as partnerships, management, or protection afforded by cooperative management efforts—

under section 4(b)(2) of the Act. In this proposed rule, we are seeking credible information from the public regarding the existence of a meaningful impact supporting a benefit of excluding any areas that would be used in an exclusion analysis that may result in the exclusion of areas from the final critical habitat designation. (Please see **FOR FURTHER INFORMATION CONTACT** for instructions on how to submit comments).

**Required Determinations**

*Clarity of the Rule*

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

(1) Be logically organized;

(2) Use the active voice to address readers directly;

(3) Use clear language rather than jargon;

(4) Be divided into short sections and sentences; and

(5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

*Regulatory Planning and Review (Executive Orders 12866 and 13563)*

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget will review all significant rules. OIRA has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this proposed rule in a manner consistent with these requirements.

*Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq*.), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include

manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine whether potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term "significant economic impact" is meant to apply to a typical small business firm's business operations.

Under the RFA, as amended, and as understood in light of recent court decisions, Federal agencies are required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself; in other words, the RFA does not require agencies to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried out by the agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies would be directly regulated if we adopt the proposed critical habitat designation. The RFA does not require evaluation of the potential impacts to entities not directly regulated. Moreover, Federal agencies are not small entities. Therefore, because no small entities would be directly regulated by this rulemaking, the Service certifies that, if made final as proposed, the proposed critical

habitat designation will not have a significant economic impact on a substantial number of small entities.

In summary, we have considered whether the proposed designation would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that, if made final, the proposed critical habitat designation will not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required.

*Energy Supply, Distribution, or Use—Executive Order 13211*

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. In our economic analysis, we did not find that this proposed critical habitat designation would significantly affect energy supplies, distribution, or use. We did not find that designation of this proposed critical habitat will have an annual effect on the economy of $100 million or more or significantly affect energy supplies, distribution, or use due to the lack of any energy supply or distribution lines within the proposed critical habitat designation. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

*Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq*.), we make the following finding:

(1) This proposed rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or Tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector

mandates." These terms are defined in 2 U.S.C. 658(5)–(7). "Federal intergovernmental mandate" includes a regulation that "would impose an enforceable duty upon State, local, or Tribal governments" with two exceptions. It excludes "a condition of Federal assistance." It also excludes "a duty arising from participation in a voluntary Federal program," unless the regulation "relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and Tribal governments under entitlement authority," if the provision would "increase the stringency of conditions of assistance" or "place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding," and the State, local, or Tribal governments "lack authority" to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. "Federal private sector mandate" includes a regulation that "would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program."

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary

Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments. The lands being proposed for critical habitat designation are owned by Richmond County and the State of Georgia. Neither of these governments fits the definition of "small governmental jurisdiction", nor does the designation of critical habitat impose an obligation on State or local governments. Small governments will be affected only to the extent that any programs having Federal funds, permits, or other authorized activities must ensure that their actions will not adversely affect the critical habitat. Therefore, a Small Government Agency Plan is not required.

*Takings—Executive Order 12630*

In accordance with E.O. 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for Ocmulgee skullcap in a takings implications assessment. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation. Designation of critical habitat does not affect land ownership, or establish any closures, or restrictions on use of or access to the designated areas. Furthermore, the designation of critical habitat does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. However, Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. A takings implications assessment has been completed for the proposed designation of critical habitat for Ocmulgee skullcap, and it concludes that, if adopted,

this designation of critical habitat does not pose significant takings implications for lands within or affected by the designation.

*Federalism—Executive Order 13132*

In accordance with E.O. 13132 (Federalism), this proposed rule does not have significant Federalism effects. A federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of this proposed critical habitat designation with, appropriate State resource agencies. From a federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the proposed rule does not have substantial direct effects either on the States, or on the relationship between the Federal government and the States, or on the distribution of powers and responsibilities among the various levels of government. The proposed designation may have some benefit to these governments because the areas that contain the features essential to the conservation of the species are more clearly defined, and the physical or biological features of the habitat necessary for the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist State and local governments in long-range planning because they no longer have to wait for case-by-case section 7 consultations to occur.

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) of the Act would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical

habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

*Civil Justice Reform—Executive Order 12988*

In accordance with E.O. 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule would not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, this proposed rule identifies the physical or biological features essential to the conservation of the species. The proposed areas of designated critical habitat are presented on maps, and the proposed rule provides several options for the interested public to obtain more detailed location information, if desired.

*Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This rule does not contain information collection requirements, and a submission to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*) is not required. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

*National Environmental Policy Act (42 U.S.C. 4321 et seq.)*

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the *Federal Register* on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

*Government-to-Government Relationship with Tribes*

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. We have coordinated with the Catawba Tribe regarding the SSA that informed this proposed listing determination and critical habitat designation and provided the Tribe with an opportunity to review the SSA report. We have determined that no Tribal lands fall within the boundaries of the proposed critical habitat for the Ocmulgee skullcap, so no Tribal lands would be affected by the proposed designation.

**References Cited**

A complete list of references cited in this rulemaking is available on the internet at *https://www.regulations.gov* and upon request from the Georgia Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

**Authors**

The primary authors of this proposed rule are the staff members of the Fish and Wildlife Service's Species Assessment Team and the Georgia Ecological Services Field Office.

**List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

**Proposed Regulation Promulgation**

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

**PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS**

1. The authority citation for part 17 continues to read as follows:

AUTHORITY: 16 U.S.C. 1361-1407; 1531-1544; and 4201-4245, unless otherwise noted.

2. In § 17.12 in paragraph (h) amend the table by adding an entry for "*Scutellaria ocmulgee*" to the List of Endangered and Threatened Plants in alphabetical order under FLOWERING PLANTS to read as follows:

**§ 17.12 Endangered and threatened plants.**

* * * * *

(h) * * *

| Scientific name | Common name | Where listed | Status | Listing citations and applicable rules |
|---|---|---|---|---|
| FLOWERING PLANTS | | | | |
| * * * * * * * | | | | |
| *Scutellaria ocmulgee* | Ocmulgee skullcap | Wherever found | T | [*Federal Register* citation when published as a final rule];<br>50 CFR 17.73(m);[4d]<br>50 CFR 17.96(a).[CH] |
| * * * * * * * | | | | |

3. Amend § 17.73 by adding paragraphs (c) through (m) to read as follows:

**§ 17.73 Special rules—flowering plants.**

* * * * *

(c) through (l) [Reserved]

(m) *Scutellaria ocmulgee* (Ocmulgee skullcap).

(1) *Prohibitions.* The following prohibitions that apply to endangered plants also apply to Ocmulgee skullcap. Except as provided under paragraph (m)(2) of this section, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit, or cause to be committed, any of the following acts in regard to this species:

(i) Import or export, as set forth at § 17.61(b) for endangered plants.

(ii) Remove and reduce to possession the species from areas under Federal jurisdiction; maliciously damage or destroy the species on any such area; or remove, cut, dig up, or damage or destroy the species on any other area in knowing violation of any law or regulation of any State or in the course of any violation of a State criminal trespass law.

(iii) Engage in interstate or foreign commerce in the course of commercial activity, as set forth at § 17.61(d) for endangered plants.

(iv) Sale or offer for sale, as set forth at § 17.61(e) for endangered plants.

(2) *Exceptions from prohibitions.* In regard to this species, you may:

(i) Conduct activities as authorized by permit under § 17.72.

(ii) Remove and reduce to possession from areas under Federal jurisdiction, as set forth at § 17.71(b) for threatened plants.

(iii) Engage in any act prohibited under paragraph (m)(1) of this section with seeds of cultivated specimens, provided that a statement that the seeds are of "cultivated origin" accompanies the seeds or their container.

4. Amend § 17.96(a) by adding an entry for "Family Lamiaceae: *Scutellaria ocmulgee* (Ocmulgee skullcap)", immediately after the entry for "Family Lamiaceae: *Monardella viminea* (willowy monardella)", to read as follows:

**§ 17.96 Critical habitat—plants.**

(a) *Flowering plants*.

* * * * *

Family Lamiaceae: *Scutellaria ocmulgee* (Ocmulgee skullcap)

(1) Critical habitat units are depicted for Bibb, Bleckley, Burke, Columbia, Houston, Monroe, Pulaski, Richmond, Screven, and Twiggs Counties in Georgia and Aiken and Edgefield Counties in South Carolina, on the maps in this entry.

(2) Within these areas, the physical or biological features essential to the conservation of Ocmulgee skullcap consist of the following components:

(i) River bluffs with steep and/or shallow soils that are subject to localized disturbances that limit the accumulation of leaf litter and competition within the Upper Gulf Coastal Plain and Piedmont of Georgia.

(ii) Well-drained soils that are buffered or circumneutral (pH between 6.5 and 7.5) generally within regions underlain or otherwise influenced by limestone or marl.

(iii) A mature, mixed-level canopy with spatial heterogeneity, providing mottled shade and often including with a rich diversity of grasses and forbs characterizing the herb layer.

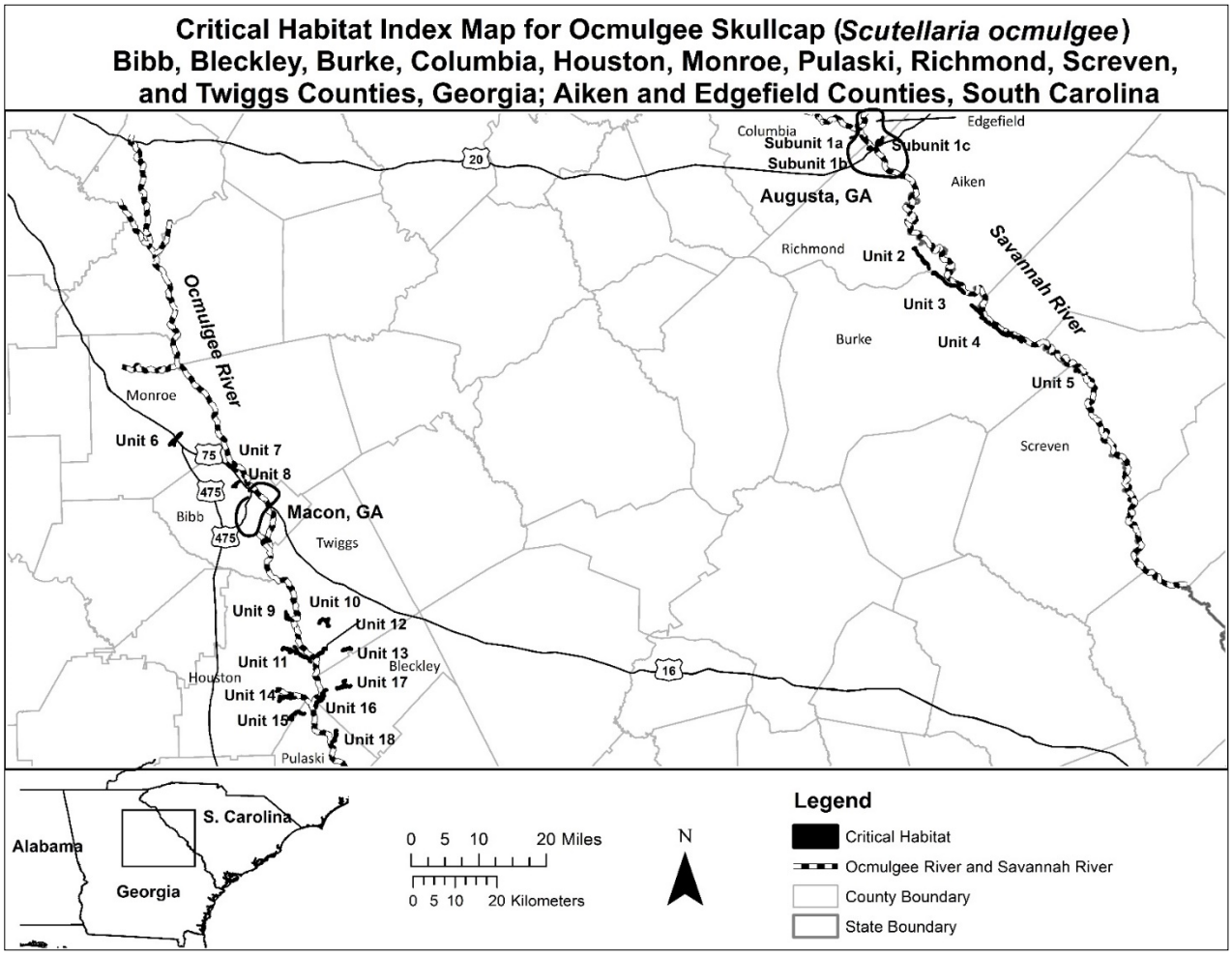
(iv) Intact forested habitat that is fully functional (i.e., with mature canopy and discrete disturbances) and buffered by surrounding habitat to impede the invasion of competitors.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) Data layers defining map units were created using ArcMap version 10.6 (Environmental Systems Research Institute, Inc.), a geographic information systems program on a base of USA Topo Maps. Critical habitat units were then mapped using NAD 1983, Universal Transverse Mercator (UTM) Zone 17N coordinates. The maps in

this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's internet site at *https://www.fws.gov/office/georgia-ecological-services/library*, at *https://www.regulations.gov* at Docket No. FWS-R4-ES-2021-0059, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

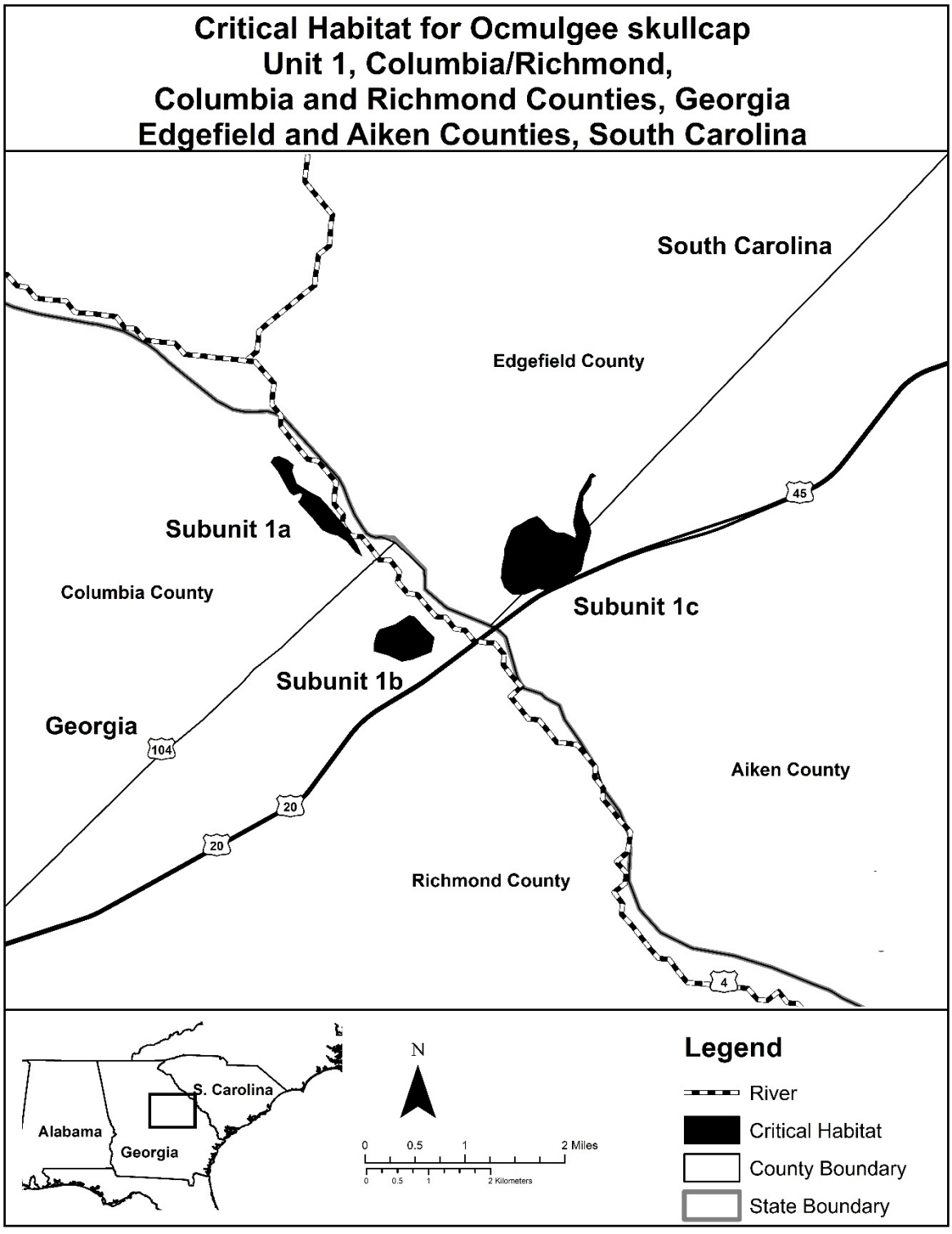
(5) Note: Index map follows:




(6) Unit 1: Columbia/Richmond, Columbia and Richmond Counties, Georgia, and Aiken and Edgefield Counties, South Carolina.

(i) Unit 1 includes 3 subunits and consists of 557 ac (225 ha) in Columbia and Richmond Counties, Georgia, and Aiken and Edgefield Counties, South Carolina, including county-owned lands (28 ac (11 ha)) and lands in private ownership (529 ac (214 ha)).

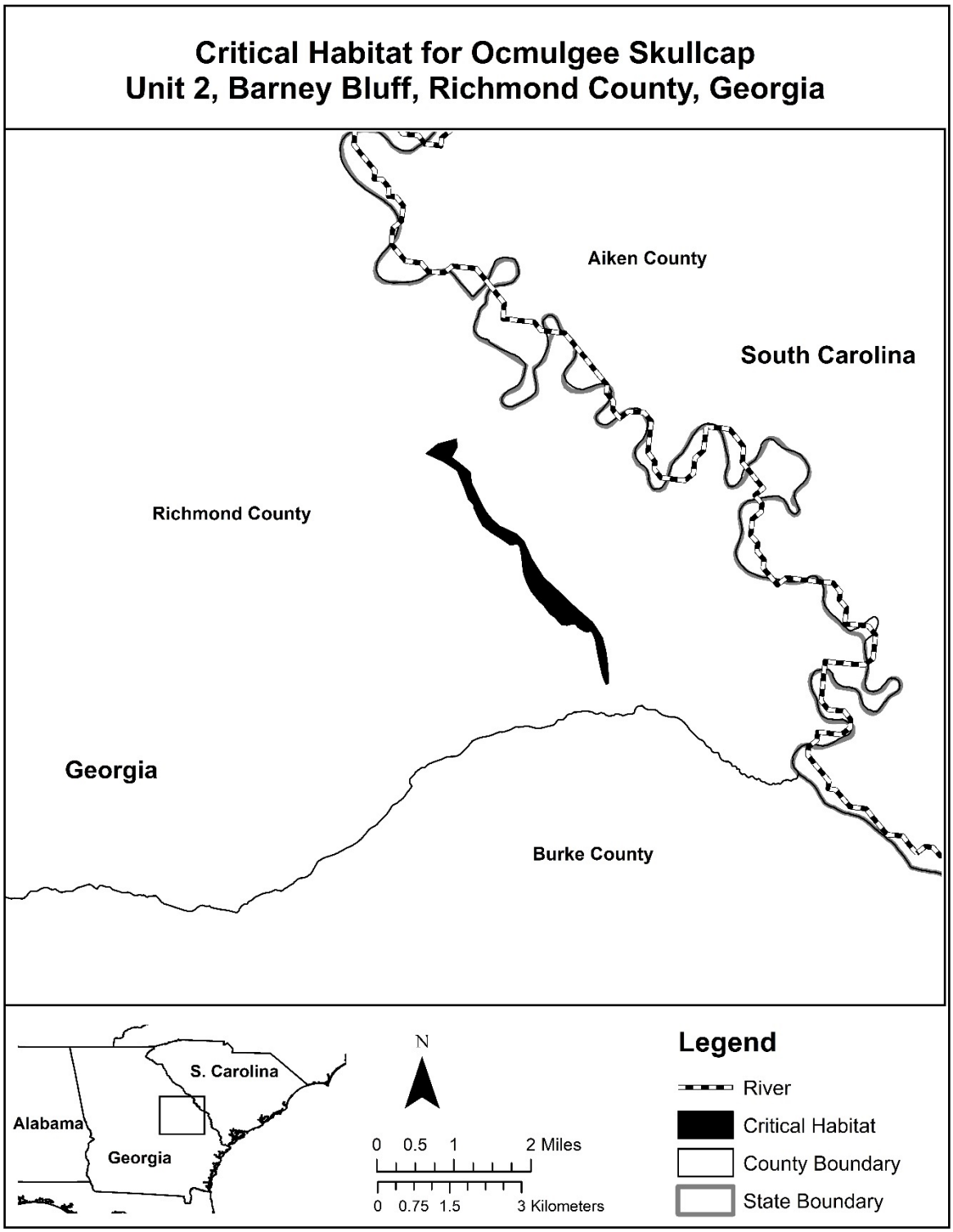
(ii) Map of Unit 1 follows:



(7) Unit 2: Barney Bluff, Richmond County, Georgia.

(i) Unit 2 consists of 415 ac (168 ha) in Richmond County, Georgia, and is composed of lands in private ownership.

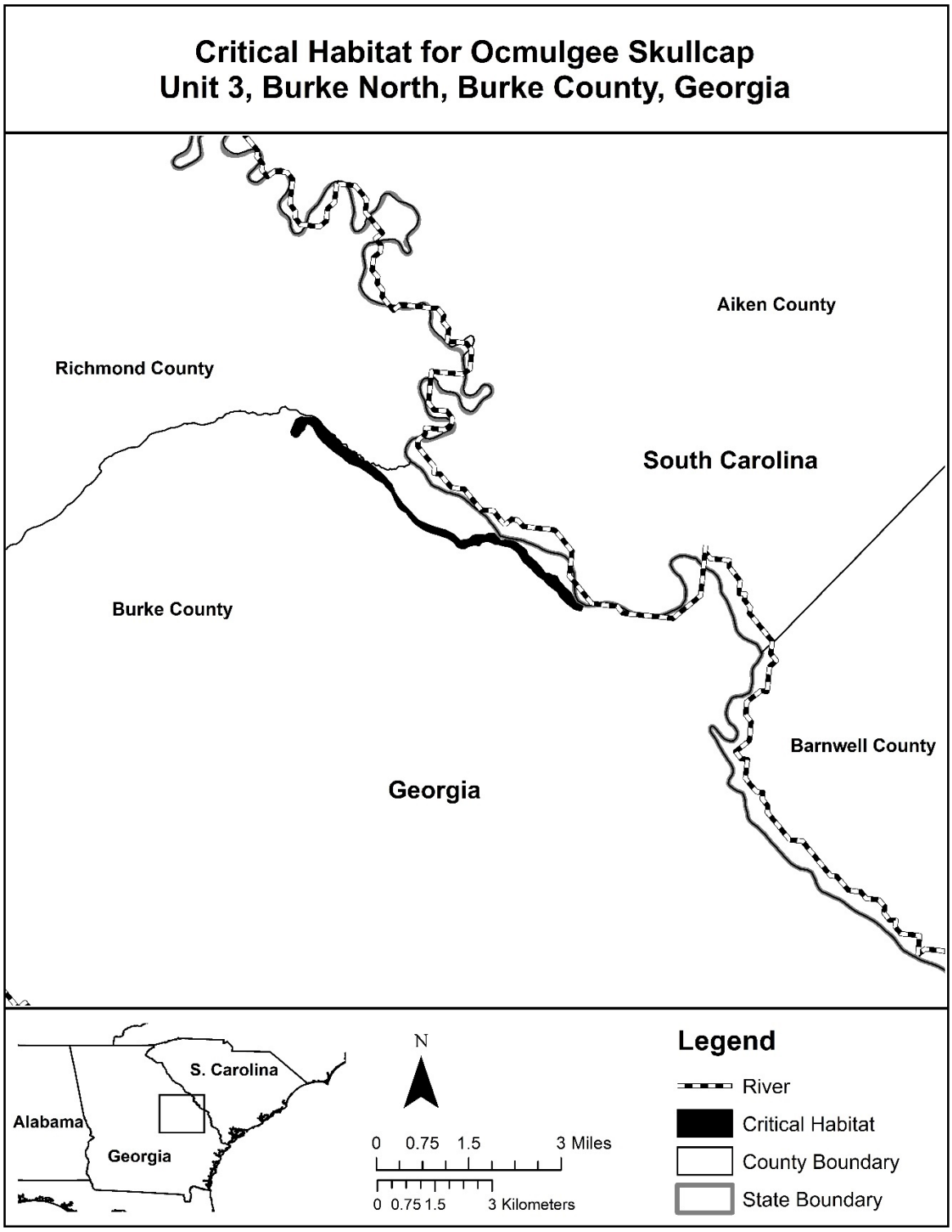
(ii) Map of Unit 2 follows:



(8) Unit 3: Burke North; Burke County, Georgia

(i) Unit 3 consists of 526 ac (213 ha) in Burke County, Georgia, and is composed of lands in private ownership.

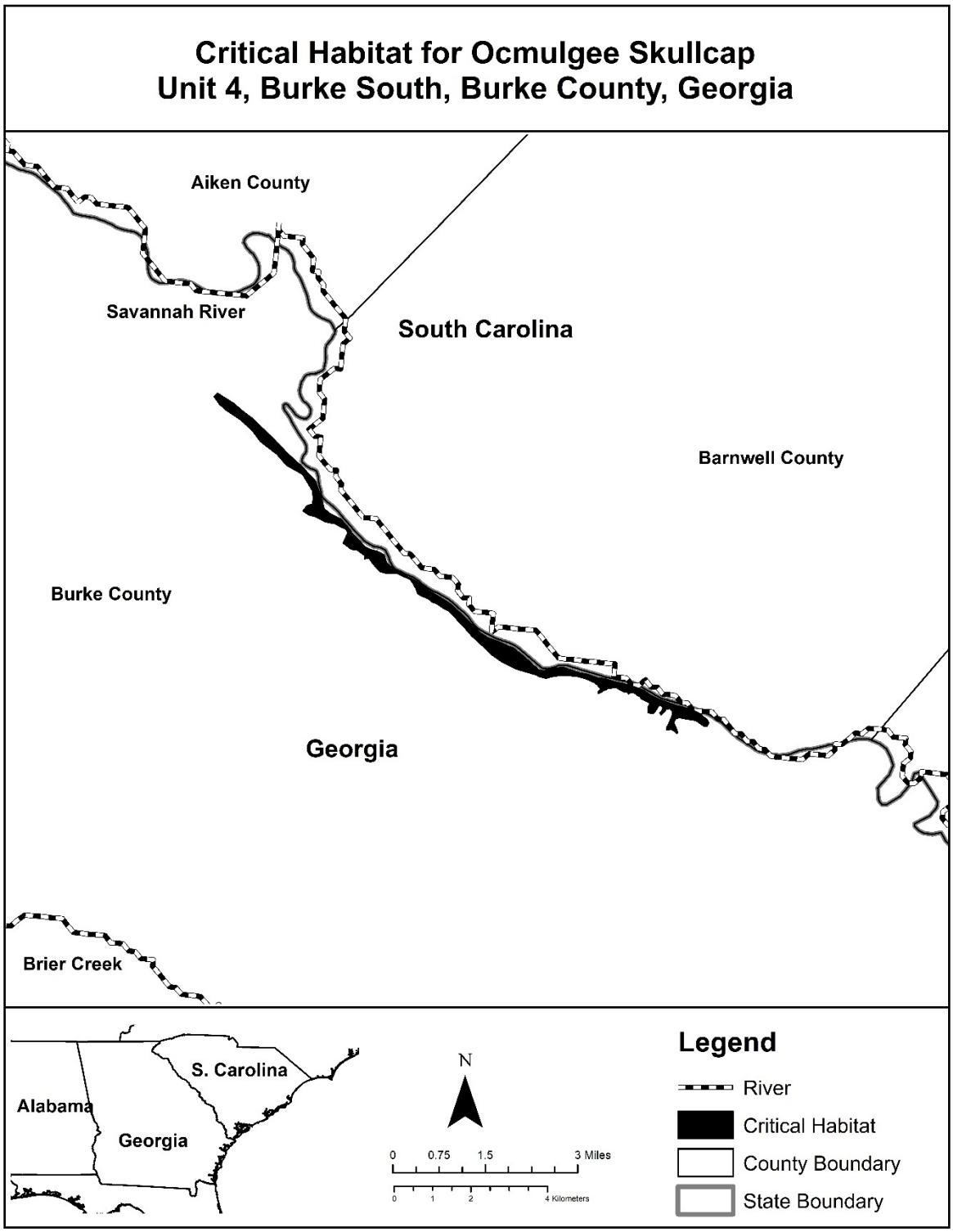
(ii) Map of Unit 3 follows:




(9) Unit 4: Burke South, Burke County, Georgia.

(i) Unit 4 consists of 976 ac (395 ha) in Burke County, Georgia, and is composed of lands in State (199 ac (80 ha)) and private (777 ac (314 ha)) ownership.

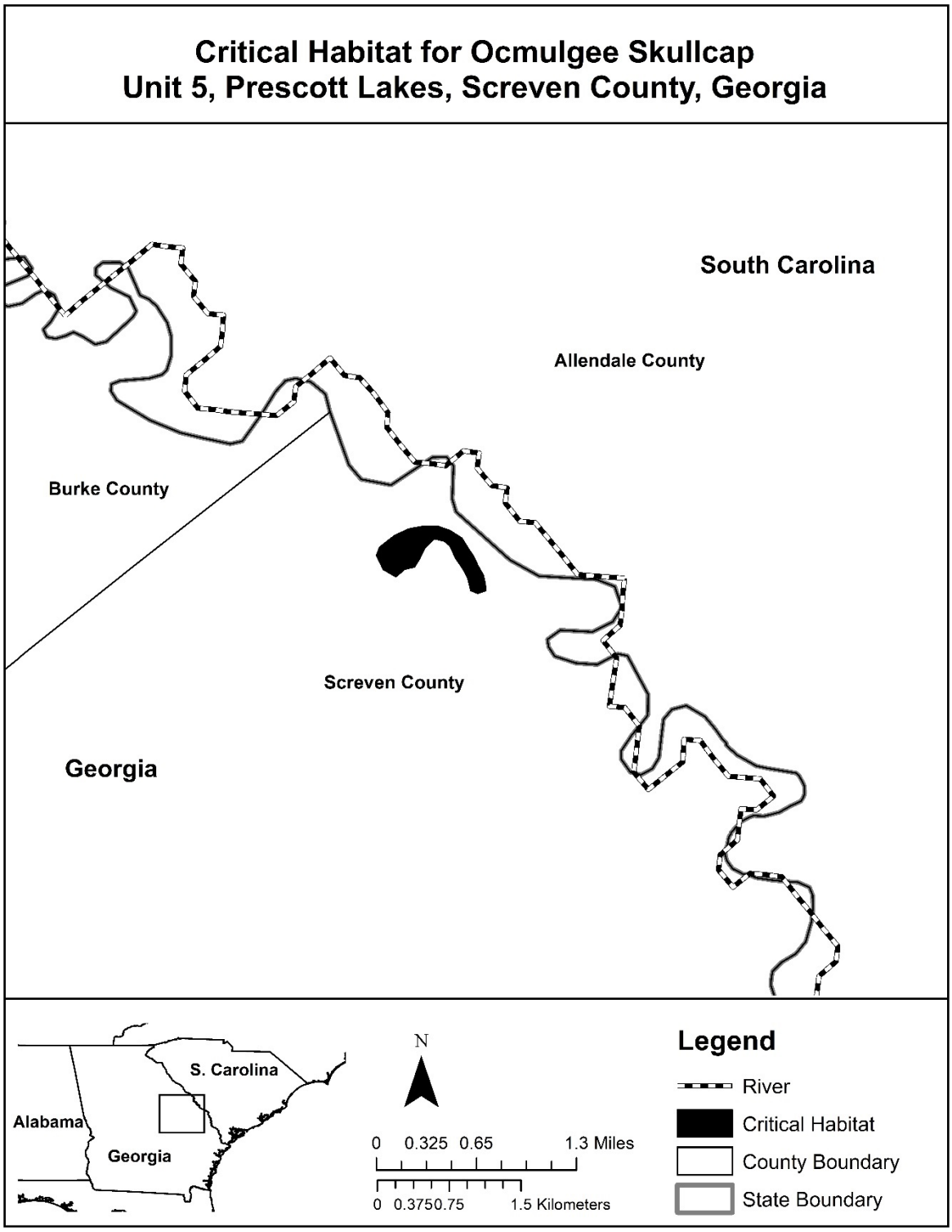
(ii) Map of Unit 4 follows:



(10) Unit 5: Prescott Lakes, Screven County, Georgia.

(i) Unit 5 consists of 81 ac (33 ha) in Screven County, Georgia, and is composed of lands in private ownership.

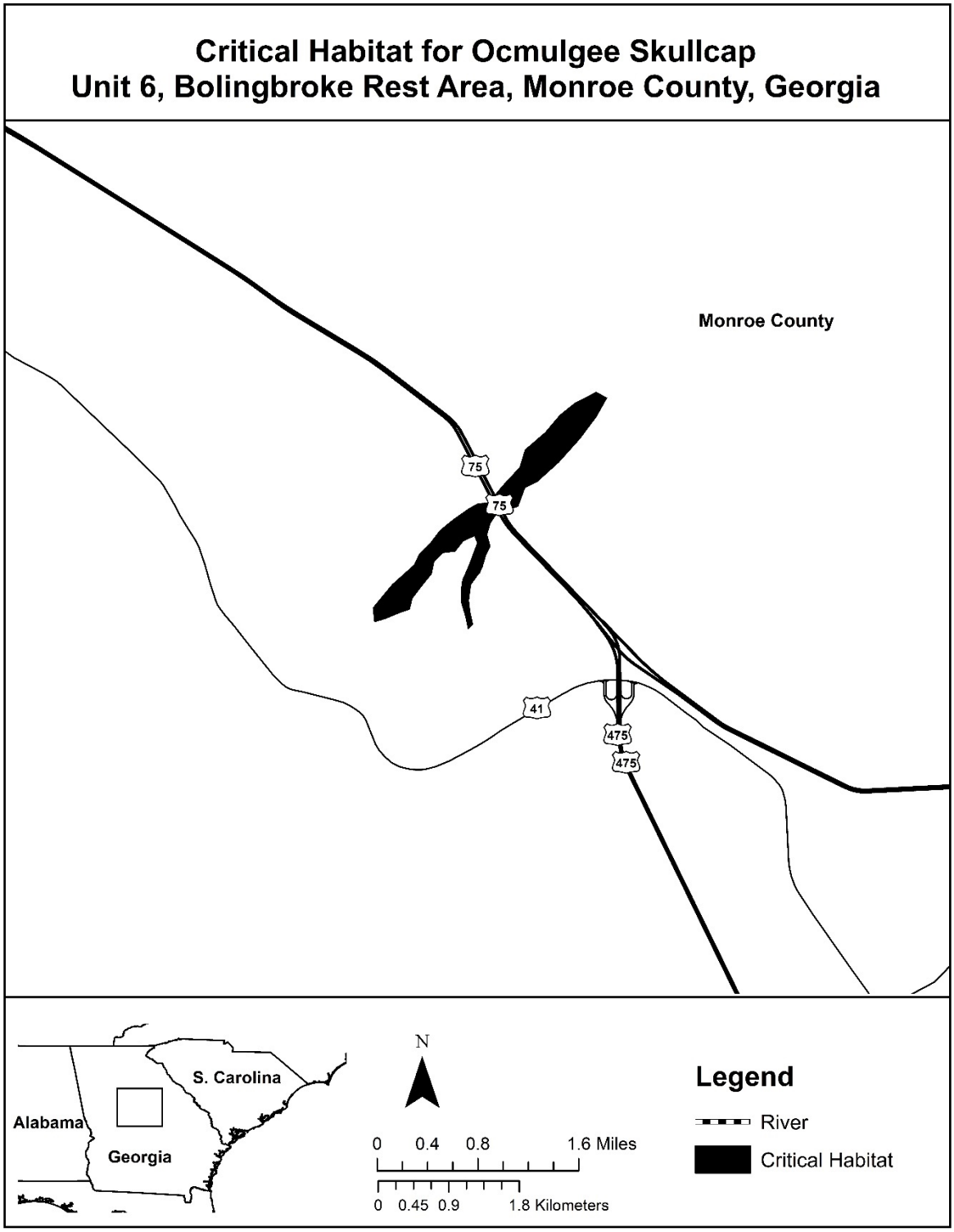
(ii) Map of Unit 5 follows:




(11) Unit 6: Bolingbroke Rest Area, Monroe County, Georgia.

(i) Unit 6 consists of 338 ac (137 ha) in Monroe County, Georgia, and is composed of lands in private ownership.

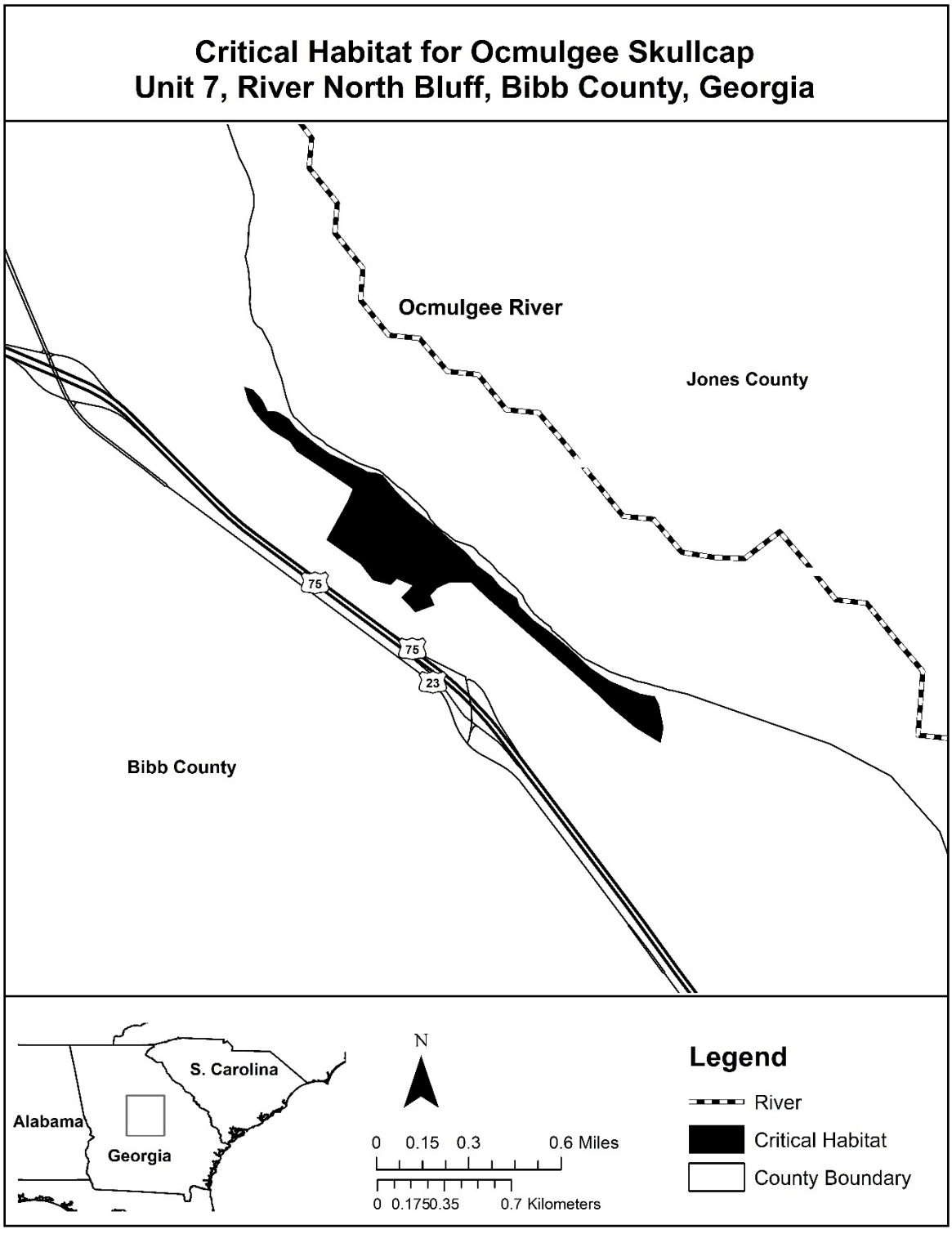
(ii) Map of Unit 6 follows:



(12) Unit 7: River North Bluff, Bibb County, Georgia.

(i) Unit 7 consists of 115 ac (46 ha) in Bibb County, Georgia, and is composed of lands in State (10 ac (4 ha)) and private (105 ac (42 ha)) ownership.

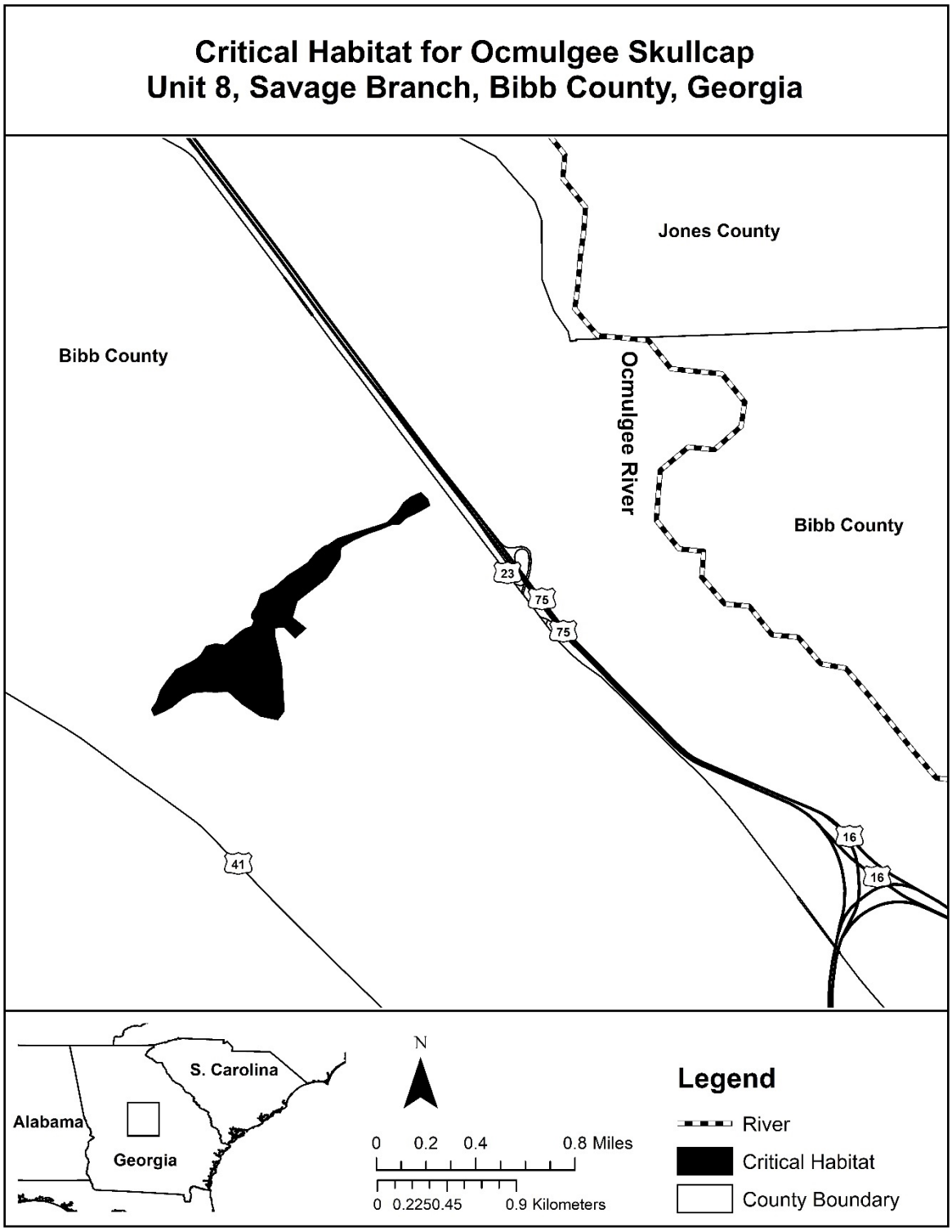
(ii) Map of Unit 7 follows:



(13) Unit 8: Savage Branch, Bibb County, Georgia.

(i) Unit 8 consists of 115 ac (46 ha) in Bibb County, Georgia, and is composed of lands in private ownership.

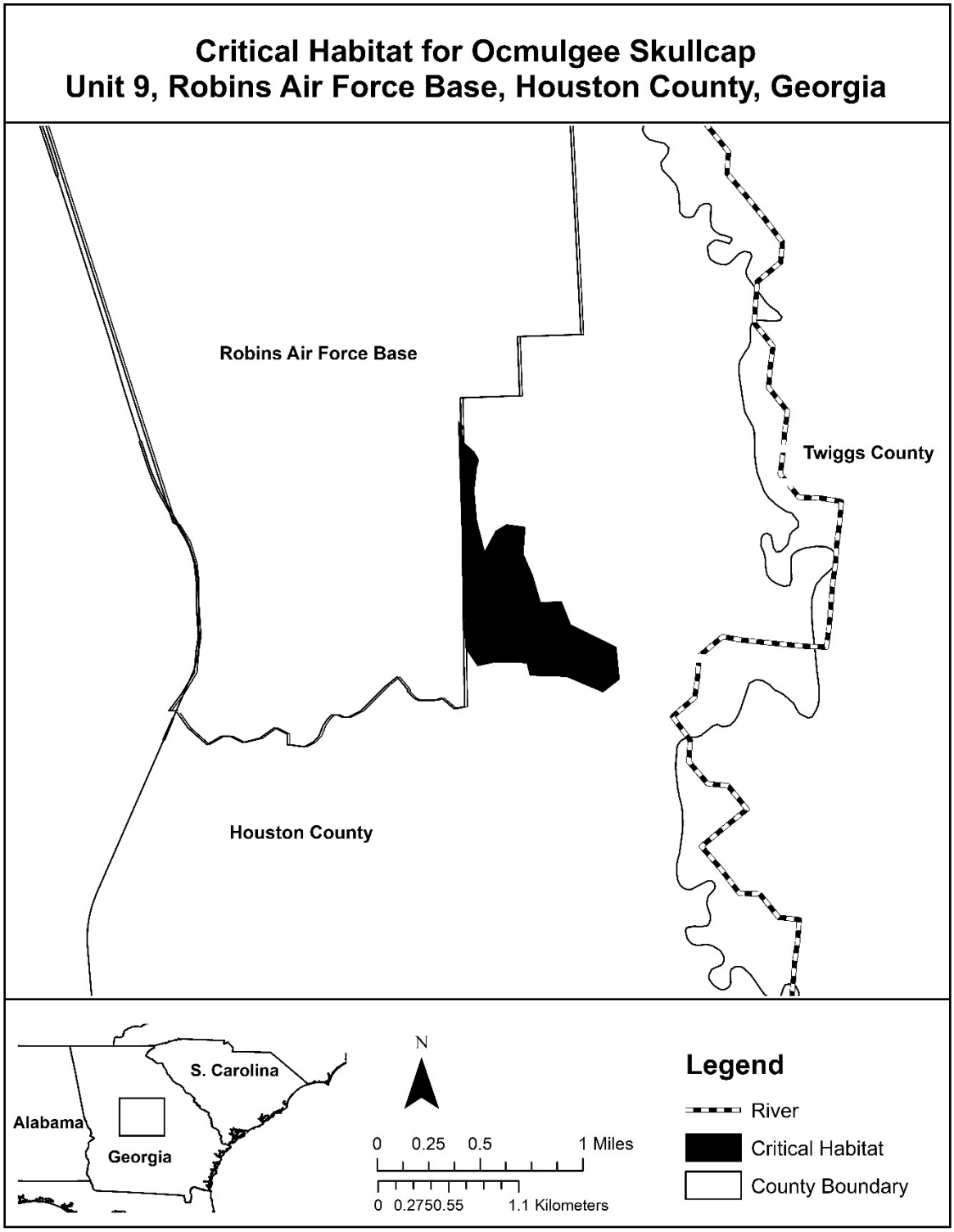
(ii) Map of Unit 8 follows:




(14) Unit 9: Robins Air Force Base, Houston County, Georgia.

(i) Unit 9 consists of 231 ac (93 ha) in Houston County, Georgia, and is composed of lands in private ownership.

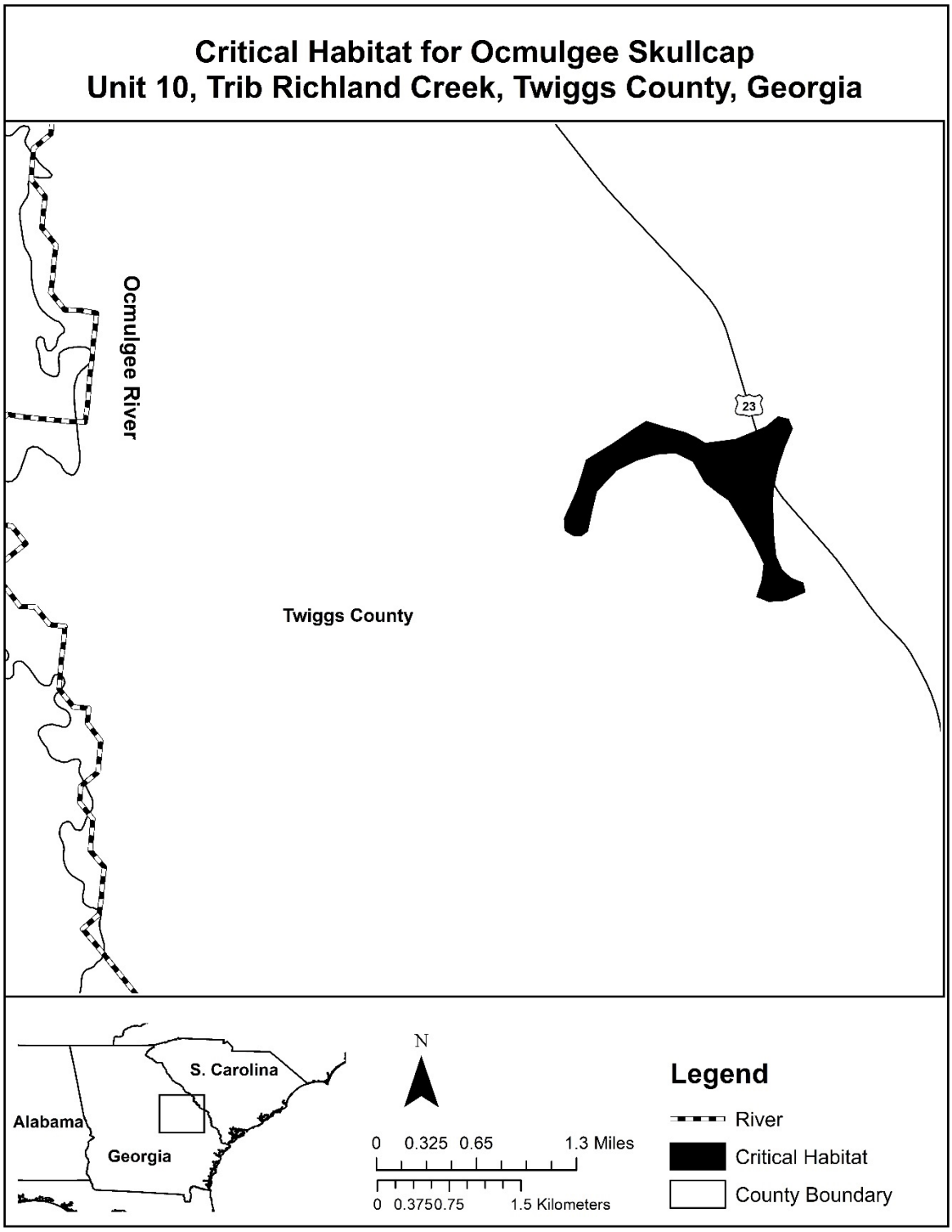
(ii) Map of Unit 9 follows:



(15) Unit 10: Trib Richland Creek, Twiggs County, Georgia.

(i) Unit 10 consists of 340 ac (138 ha) in Twiggs County, Georgia, and is composed of lands in State (242 ac (98 ha)) and private (98 ac (40 ha)) ownership.

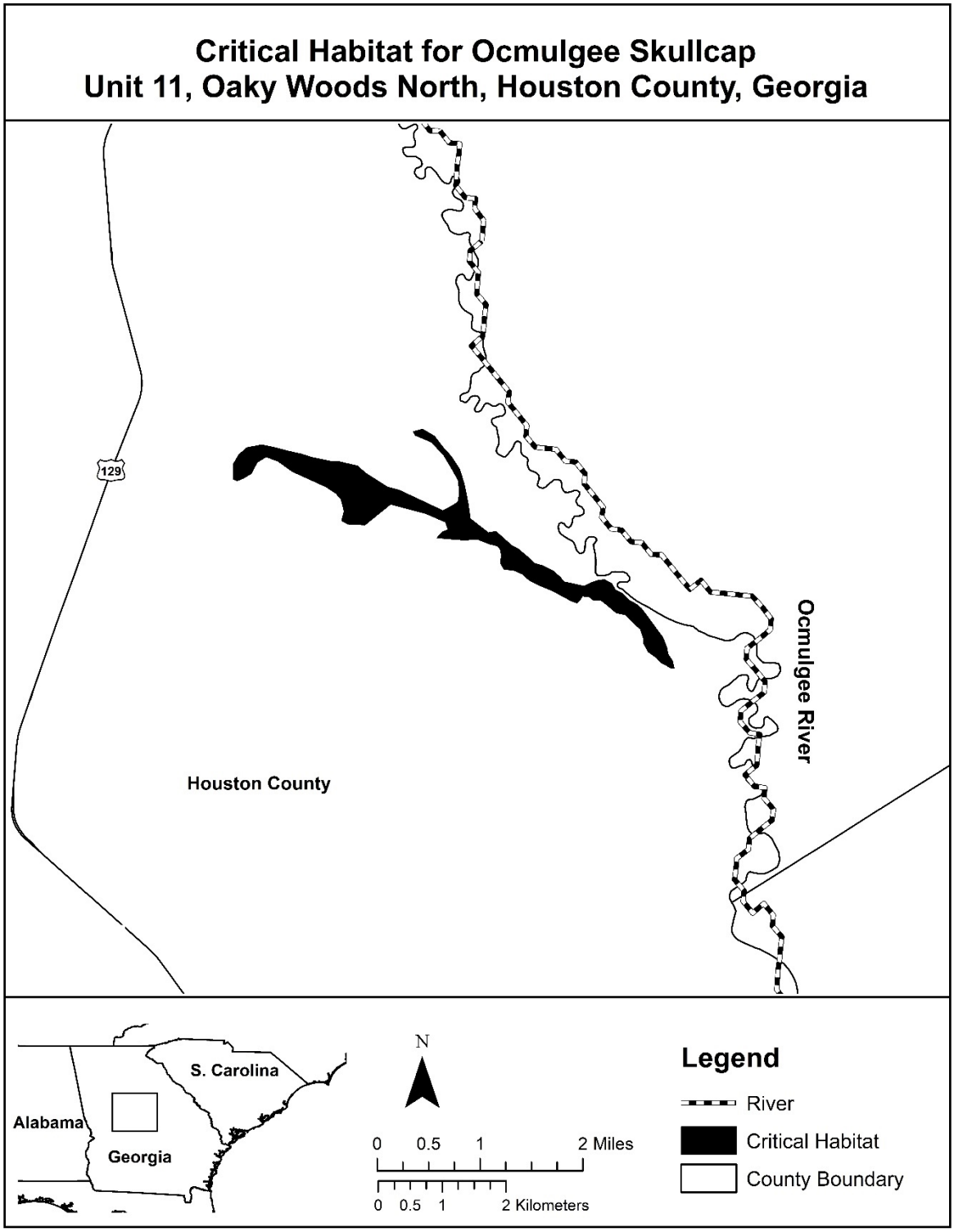
(ii) Map of Unit 10 follows:




(16) Unit 11: Oaky Woods North, Houston County, Georgia.

(i) Unit 11 consists of 657 ac (266 ha) in Houston County, Georgia, and is composed of lands in State (228 ac (92 ha)) and private (429 ac (174 ha)) ownership.

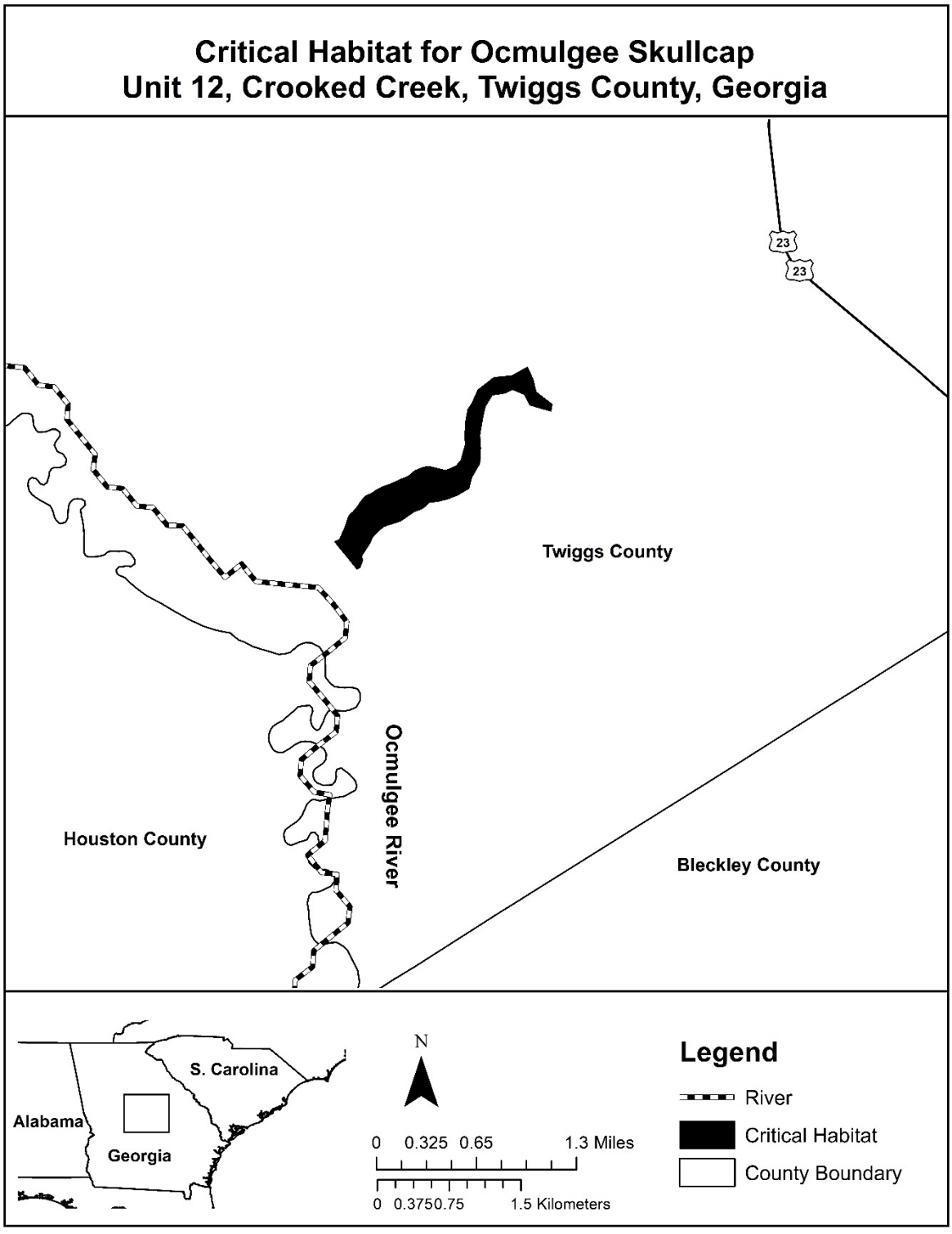
(ii) Map of Unit 11 follows:



(17) Unit 12: Crooked Creek, Twiggs County, Georgia.

(i) Unit 12 consists of 205 ac (83 ha) in Twiggs County, Georgia, and is composed of lands in State (201 ac (81 ha)) and private (4 ac (1.6 ha)) ownership.

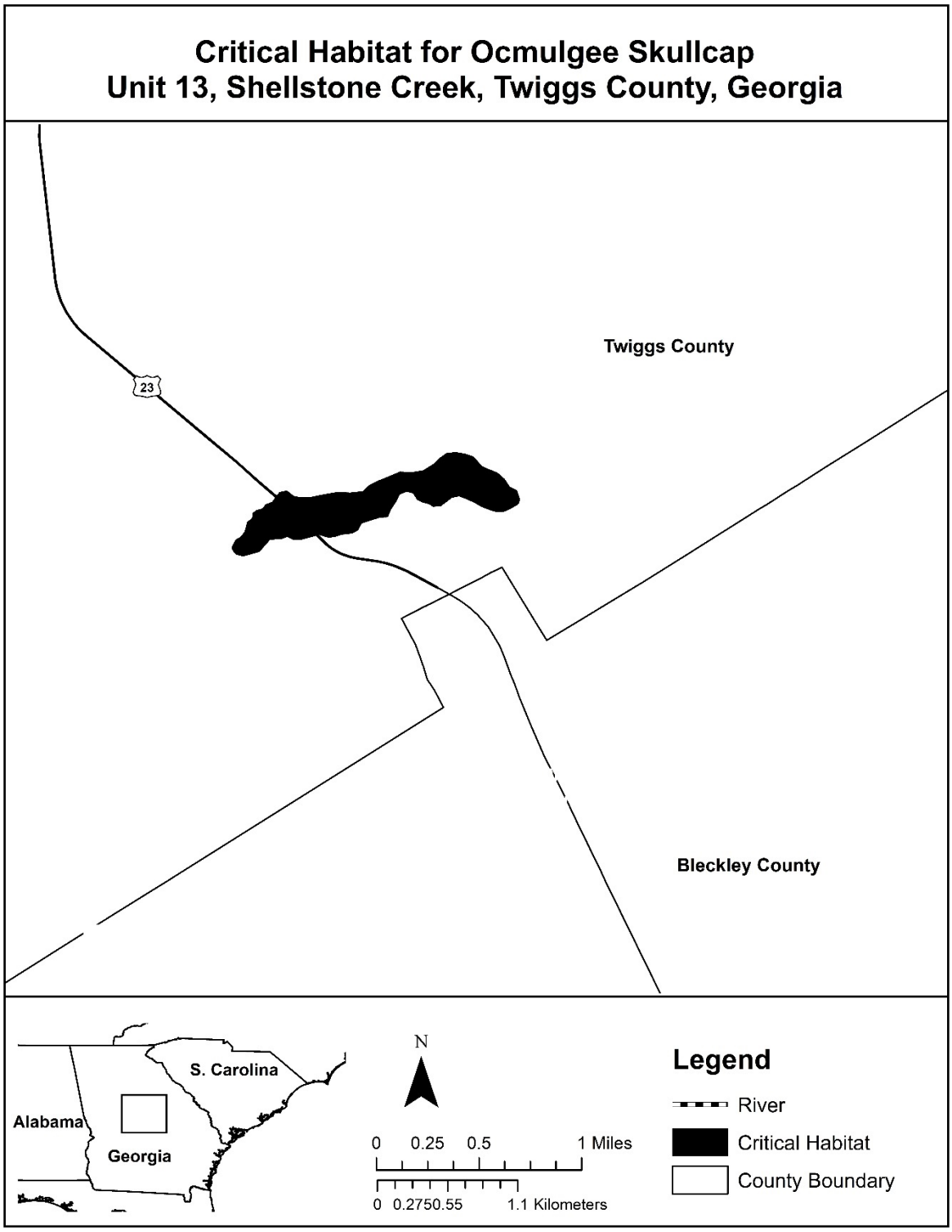
(ii) Map of Unit 12 follows:



(18) Unit 13: Shellstone Creek, Twiggs County, Georgia.

(i) Unit 13 consists of 160 ac (65 ha) in Twiggs County, Georgia, and is composed of lands in State (15 ac (6 ha)) and private (145 ac (59 ha)) ownership.

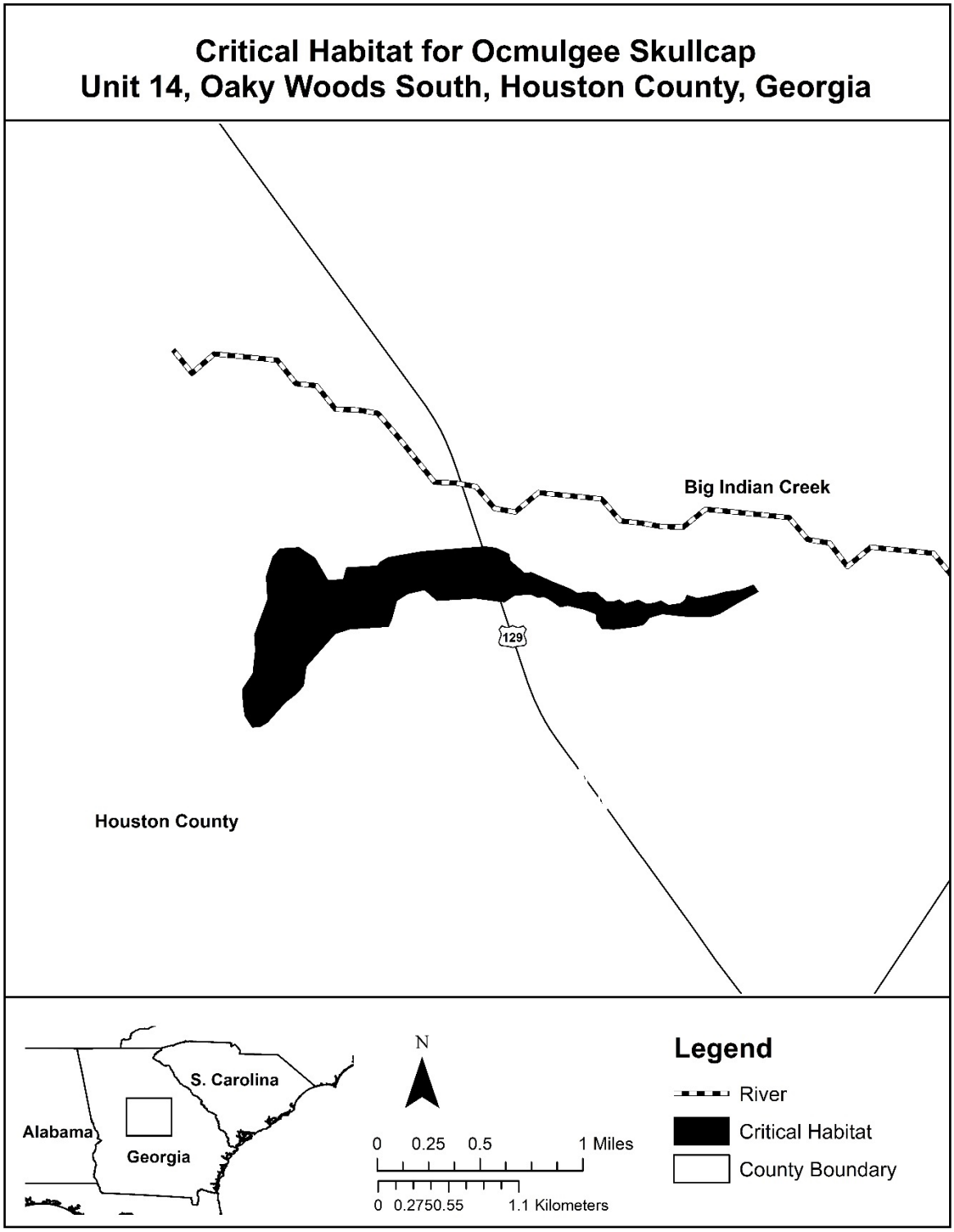
(ii) Map of Unit 13 follows:




(19) Unit 14: Oaky Woods South, Houston County, Georgia.

(i) Unit 14 consists of 363 ac (147 ha) in Houston County, Georgia, and is composed of lands in State (84 ac (34 ha)) and private (279 ac (113 ha)) ownership.

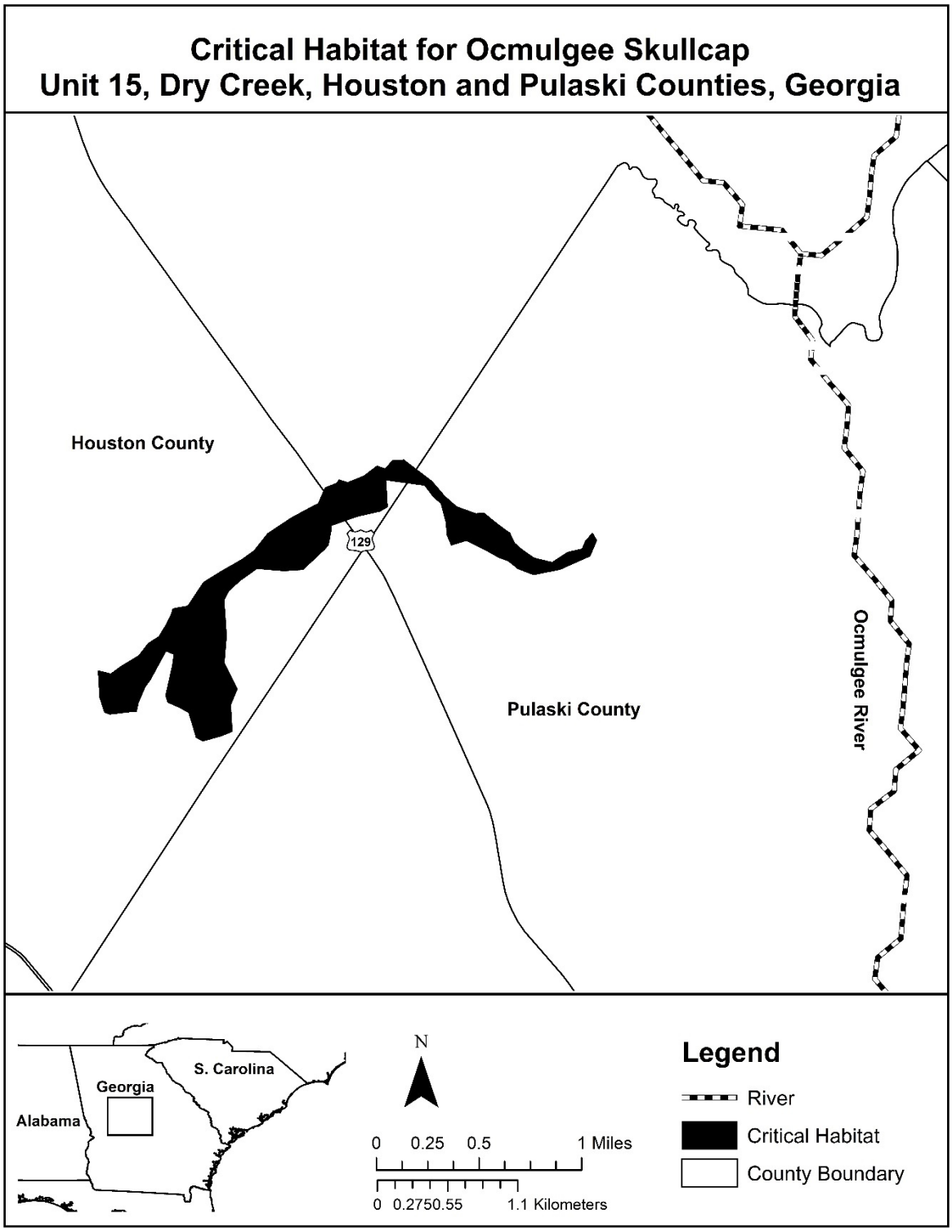
(ii) Map of Unit 14 follows:



(20) Unit 15: Dry Creek, Houston and Pulaski Counties, Georgia.

(i) Unit 15 consists of 330 ac (133 ha) in Houston and Pulaski Counties, Georgia, and is composed of lands in State (50 ac (20 ha)) and private (280 ac (113 ha)) ownership.

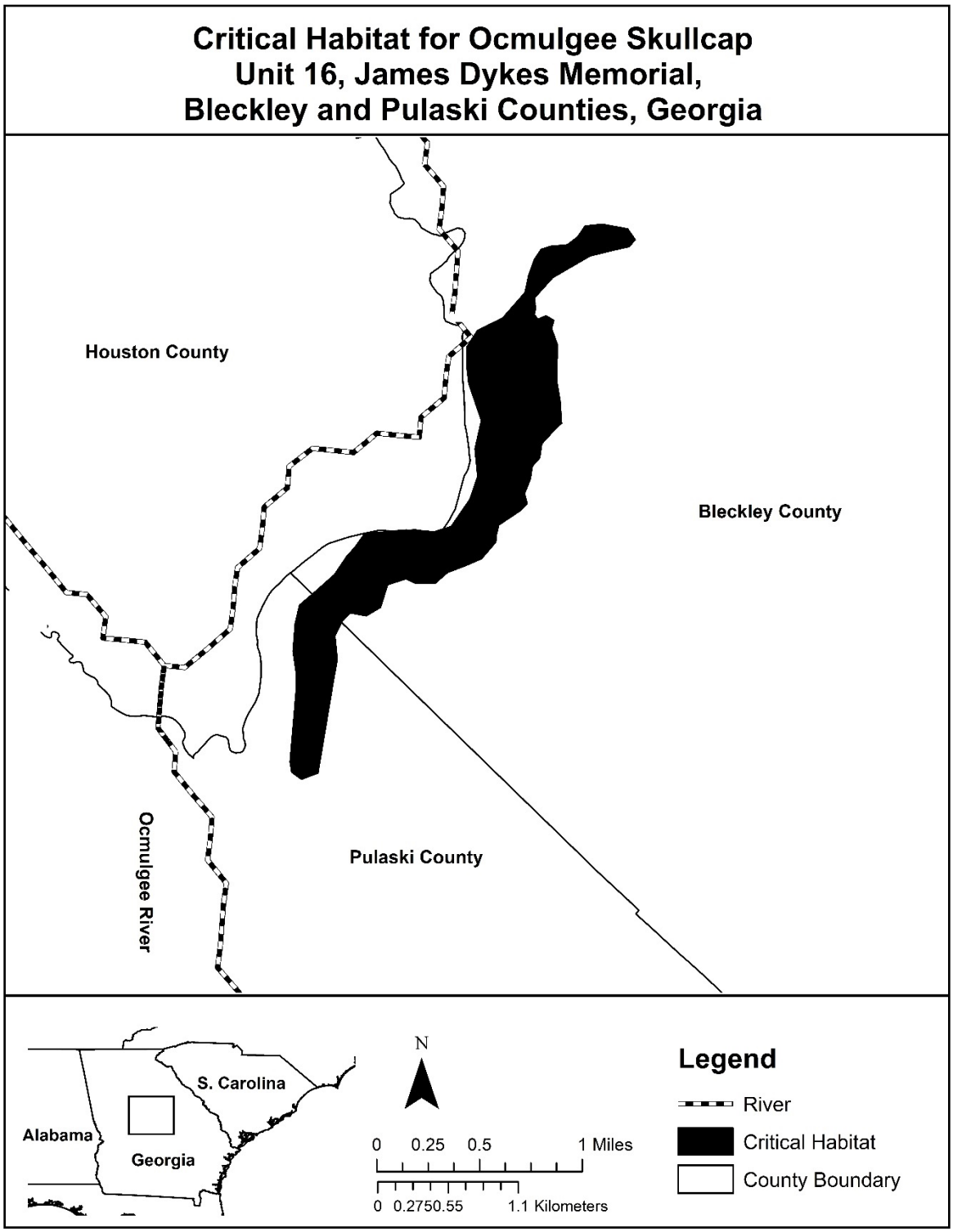
(ii) Map of Unit 15 follows:




(21) Unit 16: James Dykes Memorial, Bleckley and Pulaski counties, Georgia.

(i) Unit 16 consists of 515 ac (208 ha) in Bleckley and Pulaski Counties, Georgia, and is composed of lands in State (497 ac (201 ha)) and private (18 ac (7.3 ha)) ownership.

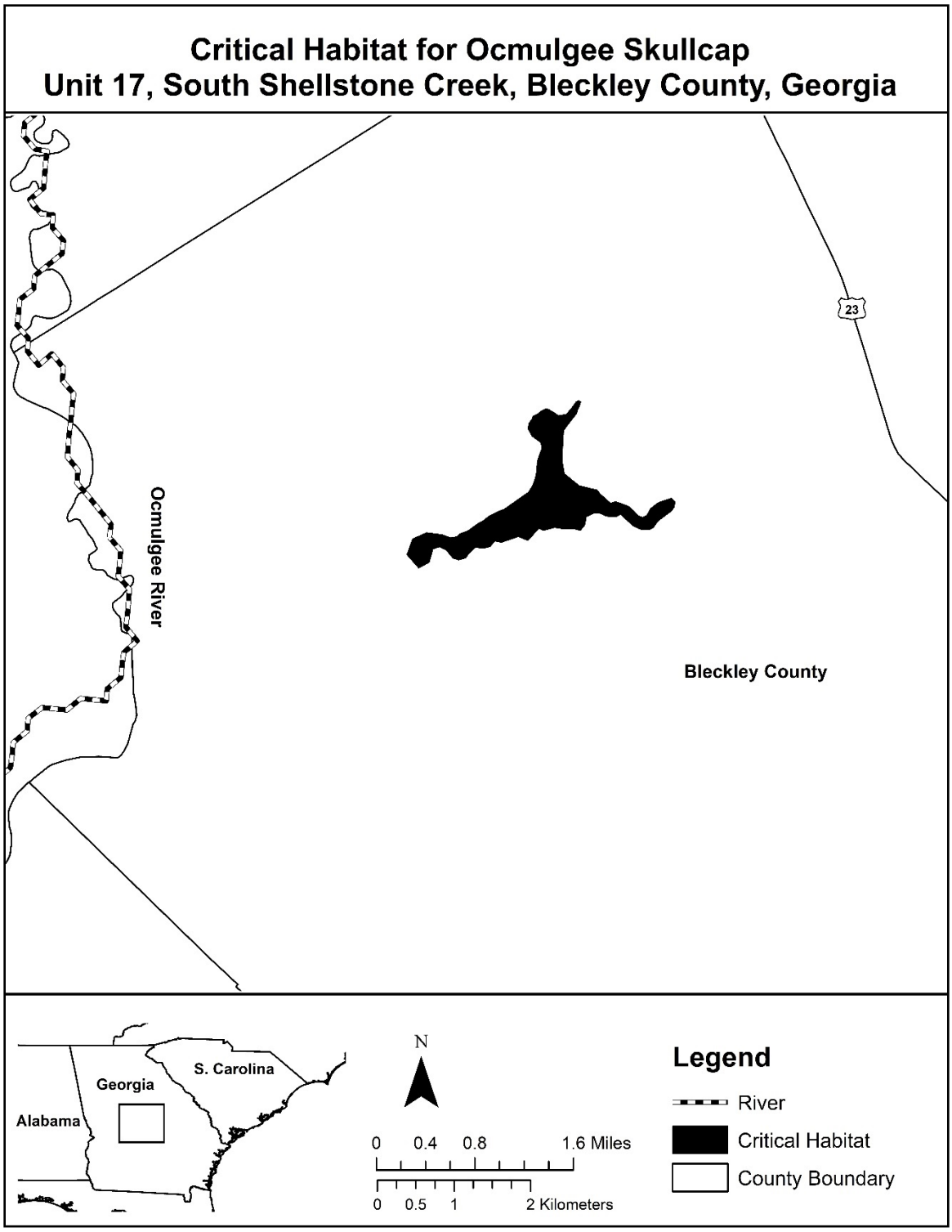
(ii) Map of Unit 16 follows:



(22) Unit 17: South Shellstone Creek, Bleckley County, Georgia.

(i) Unit 17 consists of 403 ac (163 ha) in Bleckley County, Georgia, and is composed of lands in State (4 ac (1.6 ha)) and private (399 ac (161 ha)) ownership.

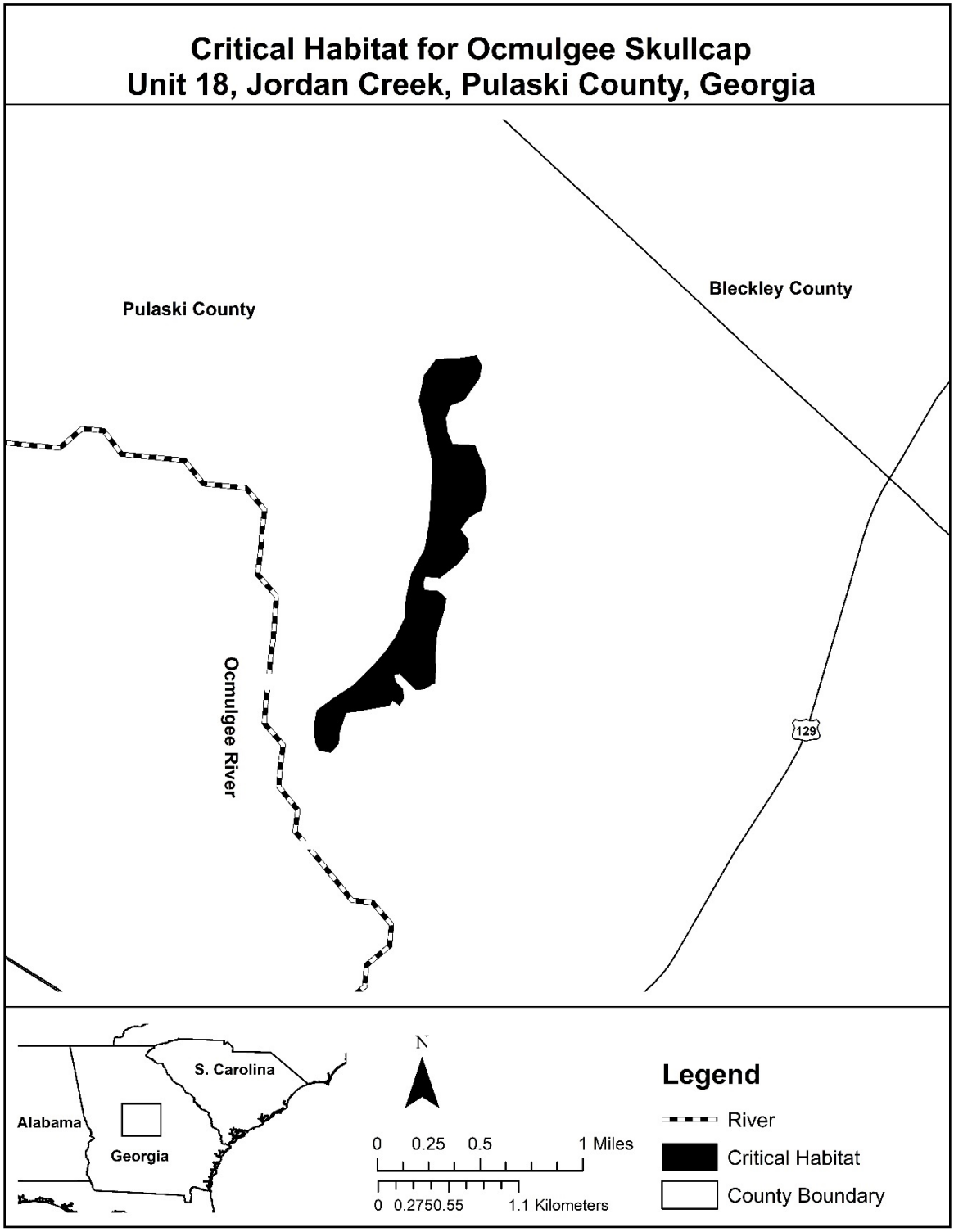
(ii) Map of Unit 17 follows:




(23) Unit 18: Jordan Creek, Pulaski County, Georgia.

(i) Unit 18 consists of 250 ac (101 ha) in Pulaski County, Georgia, and is composed of lands in private ownership.

(ii) Map of Unit 18 follows:



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**Martha Williams,**
*Director,*
*U.S. Fish and Wildlife Service*.
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